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# Raising ..... BEEF CATTLE in New York

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## Contents


Factors necessary for success ..... 5
Types of programs ..... 8
  Grade or commercial cow herds ..... 8
  Purebred cow herds ..... 9
Beef breeds ..... 10
Selection of breeding stock ..... 12
Feeds for beef cattle ..... 14
Common feeds ..... 15
Feeding the breeding herd ..... 18
  Winter or barn feeding period ..... 18
  Summer or pasture season ..... 20
Feeding steers and heifers for market ..... 20
Getting cattle on feed ..... 22
Herd management ..... 22
  Time of breeding ..... 22
  Number of cows per bull ..... 24
  Age to breed heifers ..... 24
  Artificial insemination ..... 24
  Cow at calving time ..... 24
  Castration ..... 25
  Dehorning ..... 26
  Identification of cattle ..... 27
  Culling the cow herd ..... 28
  Creep-feeding ..... 28
  Age to wean calves ..... 29
  Keep cattle well bedded ..... 29
Performance testing ..... 30
  Weaning weights ..... 31
  Post weaning gains ..... 31
  Economy or efficiency of gains ..... 32
  Quality and type or conformation ..... 33
  Records and equipment ..... 33
  Dwarfism ..... 33
  Beef Production Project ..... 34
  500 Beef Club ..... 36
Crossbreeding ..... 37
Herd Health ..... 37
  Shipping fever ..... 38
  Brucellosis ..... 38
  Vibriosis ..... 38
  Trichomoniasis ..... 39
  Leptospirosis ..... 39
  Blackleg ..... 39
  Tuberculosis ..... 39
  Pinkeye ..... 39
  Scours ..... 40
  Loss of cattle from poison ..... 40
  Bloat ..... 40

## Contents Cont'd.


Foul foot ..... 41
Warts ..... 41
Ringworm ..... 41
Cattle lice ..... 42
Cattle mange ..... 42
Horn flies and other biting flies ..... 42
Cattle grubs ..... 43
Internal parasites ..... 44
Marketing ..... 44
Feeder cattle ..... 44
Slaughter cattle ..... 45
Selling purebred cattle ..... 46
Buildings and equipment ..... 48
Housing ..... 48
Yards ..... 50
Silos ..... 50
Feed bunks and racks ..... 51
Waterers ..... 52
Fencing ..... 53
Handling equipment ..... 53
Scales ..... 54
Creep-feeders ..... 54
Exhibiting cattle at fairs and sales ..... 56
Selection ..... 56
Feeding ..... 56
Breaking cattle to lead ..... 57
Equipment for fitting and showing ..... 57
Clipping ..... 57
Foot trimming ..... 58
Washing and grooming ..... 59
Horn training ..... 60
Exercise ..... 62
Training and showmanship ..... 62
Letting down show or sale cattle ..... 62
People and groups you should know ..... 63



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# Raising Beef Cattle in New York

M. D. Lacy

Many New York farmers are finding a beef cow herd a profitable and satisfying way to market home grown feeds with a minimum of labor and with a small investment in buildings and equipment. The beef herd usually supplements other farming programs and provides the farmer or owner with one of several sources of his livelihood. Although beef cow herds are not as large or numerous in New York State as in many of the other areas of the country, statistics show that the number of cows on New York farms increased from 7,000 head in 1940 to 40,000 on January 1, 1957.

A cow and calf program has several advantages over a steer feeding enterprise, such as: (1) coarse roughages of low quality not suitable for fattening cattle and feeds that might otherwise be wasted on the farm can be profitably utilized; (2) the beef business can be developed over a period of years without a large investment; (3) farmers embarking on a beef cow and calf program on a well informed basis take most of the gamble out of the beef program; (4) beef breeders are less tempted than cattle feeders to be "in-and-outers". They tend to stay in the business rather than try to out-guess the market.

A cow and calf program has certain disadvantages when compared with a steer feeding operation, such as: (1) the cattle breeder has problems along breeding lines and usually has to be on the lookout for a good herd sire; (2) the turnover in a breeding herd is not as fast as in a steer feeding program; (3) in years when droughts occur it is more difficult to fit a breeding herd to the feed supply than it is a group of steers; and (4) the purebred breeder needs to be a good salesman.

## Factors Necessary for Success

### Be informed

Anyone planning to start a beef cow herd should first become thoroughly informed on the subject. Contact your county agricultural agent or state agricultural college for advice. Visit successful beef producers and study their program before establishing a herd.

**Fitting program into the over-all farming enterprise**

New York farms, generally speaking, are small, averaging about 128 acres. Consequently beef production, which is an extensive enterprise, should usually be only one of the sources of income. Cow and calf programs often fit into the over-all program successfully on fruit farms, cash crop operations, poultry farms, on some dairy farms where more feed is produced than is needed in the dairy program, and on part-time farms where there is a need for a method of marketing roughage.

**Size of enterprise**

The amount of grass, hay and other feeds available for beef cattle will usually determine the size of the herd. Generally speaking, cow herds of less than 12 to 15 cows are not recommended. Many farmers will find herds of 20 to 30 cows to be a practical unit. Where a major source of the farm income must be derived from beef cattle, commercial herds should have at least 50 to 100 brood cows; purebred herds could be somewhat smaller in size.

**Feed production program**

Beef cattle are a means of marketing home grown feeds, hence efficient feed production is one of the first essentials. A good roughage program is a "must" in a successful cow and calf operation. Although beef cows will probably make better use of marginal land and coarse feeds than most classes of livestock, they will respond favorably to good forage. Few producers are successful who have poor roughage programs.

Records show that most beef producers grow all their roughage and frequently all the grain necessary for the beef program on their farm. Oftentimes the only feeds purchased are minerals and protein supplements.

**Type and quality of breeding stock**

One of the most important factors in a successful beef program is to breed quality cattle of the right type. It costs no more to keep good cattle than it does the plainer kind.

Cattle should be short legged, deep bodied, thick over their top, deep and full in the rear quarters, thickly and smoothly fleshed, possess breedy heads and stand on ample bone of good quality.

All commercial cattle eventually are sold for beef, consequently weight-for-age is of importance. One should keep in mind, however, that size should not be obtained at the expense of quality. Breeders should strive for both.

**Keep overhead to minimum**

A beef production program is an extensive enterprise. It is of the utmost importance that overhead in labor, buildings and equipment per animal unit be kept to a minimum. One man may take care of 150 and sometimes 200 cows. Expensive buildings are not needed in a beef cattle program.

**Follow good management program**

A successful producer must follow a good management program. Weaning a high percentage calf crop ranks first under this heading. Breeders should wean a calf annually from at least 90 percent of the cows. Calf crops of 95 percent or higher are not unusual. Low calf crop percentages are due primarily to bulls becoming sterile or partially so, cows failing to conceive readily, and mortality of calves at calving time or within the first 4 to 6 weeks after birth. Breeders should follow a rigid culling program of all breeding stock based on records. These records should include weaning weights, post-weaning daily gains, and grade or type score of all the calves produced.

Commercial breeders and purebred breeders not showing cattle at fairs should breed their cows so that the calves will be dropped in as short a calving period as possible.

Cattle should be sorted by age groups so that they can be fed accordingly during the winter period. Young cattle should be grown out satisfactorily by feeding top quality forage and some grain; usually 2 to 6 pounds of grain per head daily. Cows should be fed economically during the winter months but should appear in good condition when pasture time arrives. Creep-feeding will usually pay unless calves are to be managed so that the baby fat will be lost following the suckling period. Pastures should be rotated and adequate grass provided for the herd throughout the grazing season.

Castrate and dehorn commercial calves before they are 10 weeks old.

*Figure 1.* Inexpensive lean-to sheds are sufficient for housing beef cattle.

**Successful marketing programs**

Marketing is a definite part of the beef producers program. Commercial herd owners selling feeder calves and those finishing steers for the slaughter market should have little difficulty. Purebred breeders, however, need to be good salesmen. This point is discussed at some length beginning on page 44.

**Herd health**

Only cattle that are healthy and free of parasites will make good use of feed and prove profitable to the farmer. This program is also discussed on pages 37 to 44.

**Keep adequate records**

More and more beef producers are realizing the value of adequate records. Every beef producer should have a scale; calves should be weighed and graded at weaning time; herd bull prospects should have adequate records kept on feedlot gains following the weaning period; heifers to be kept for breeding should be scored and weighed again at eighteen months of age.

Commercial producers should follow some type of identification for each cow, whether it be neck chain, horn brand or a brand on the side or hip of the animal.

Adequate records will permit the breeder to cull the cow herd according to production and keep in the herd only the cows which are efficient producers.

**Pedigrees**

Purebred breeders should keep informed on pedigrees and bloodlines that are popular with the trade. A new breeder establishing a breeding herd should purchase cattle of acceptable pedigrees and improve the breeding of his cattle as he is able to do so.

**Good help**

Farm help that is interested in the cattle program, although not as necessary in a commercial herd as in a purebred program, is important in a successful beef cattle operation. Few farmers are successful with a cow herd if they do not enjoy working with the livestock.

A capable farm manager or worker who is interested in the cattle program is a "must" on the farm where the owner is absent a great part of the time.

## Types of Programs

**Grade or commercial cow herds**

A commercial or grade cow herd is the simplest and least expensive type of cow and calf program to establish. Such a program can be maintained on the farm where roughage is about the only feed produced. Calves may be sold at weaning time as feeders. The only grain needed is that for heifer re-

placements, possibly some for the calves during the suckling period and grain for the herd bull.

Commercial herds kept on farms where a considerable amount of grain is grown may combine a steer feeding program with the breeding enterprise and market the young cattle for slaughter.

There are a number of ways to establish commercial herds. (1) Purchase heifer calves in the fall at private treaty or at one of the local feeder sales or direct from the Western range; (2) purchase yearling heifers in the spring which are close to breeding age; (3) buy bred heifers; and (4) purchase commercial cows which are sometimes available.

Heifer calves are the least expensive way of starting a commercial beef business, but it takes as much as two years before any income is realized from the herd. Purchasing cows with calves at side and re-bred is a quick method of becoming established in the beef business.

Areas with vast roughage production and a minimum amount of grain afford the greatest opportunity for expansion for the commercial breeders in New York State.

**Purebred cow herds**

Because farms in New York State are small and a greater return per unit is necessary, purebred herds will continue to make up a higher percentage of the cow herds in New York State than in many other areas. Purebred cow herds require more capital, more skillful labor, possibly more housing, more emphasis on a breeding program, more grain production for fitting and growing-out young cattle, and more salesmanship.

Purebred breeding herds may be subdivided into: (1) semi-commercial; (2) average purebred herds; and (3) extreme top or "name" herds.

*Figure 2.* A Shorthorn breeding herd on a New York cash crop farm.

The semi-commercial herd is one in which all of the cows are registered and often a sizable number of the calf crop is sold as feeders or fed out for the slaughter market. Occasionally a few top bull calves are sold to commercial or other small purebred breeders and a number of the heifer calves are sold for breeding purposes.

The average purebred herd is one where the better bull calves are sold as breeders, nearly all of the females are sold through some avenue as breeding stock, and relatively few of the cattle are fed for the slaughter market.

The extreme top or "name" herds are those that have a national reputation for quality and breeding, and attract buyers from throughout the country. A number of such herds are found in New York State.

## Beef Breeds

The choice of the breed is not too important to the New York farmer. Aberdeen Angus, Hereford and Shorthorn cattle are all adapted to this area. There is more variation within than between these breeds. The important point is to get good cattle in the breed chosen.

The choice should be based primarily upon the preferences or liking one has for a particular breed. A breeder will be much happier and do a better job with a breed he or she likes.

### Aberdeen Angus

The native home of Aberdeen Angus cattle is in the Highlands of Scotland. They were first brought to the United States in 1873. Angus are low set, blocky, possess excellent fleshing qualities, fine bone, and have small heads. Aberdeen Angus have an enviable carcass show record, are good grazers, and the cows, generally speaking, are good milkers. They are naturally polled and have the ability to transmit their black color to offspring when crossed on other cattle.

### Hereford

The Hereford breed originated in England and was first introduced into this country in the early part of the 19th century. This breed ranks first in numbers in the United States and is particularly popular on the western range. Herefords are noted for their hardiness and ability to make beef from grass. They are prolific, pre-potent, and fatten readily in the feed lot.

Polled Herefords have been developed during the past 50 years. They are similar to the horned Herefords except that they are naturally hornless.

### Shorthorn

Shorthorn cattle are the oldest of our beef breeds and were first developed in England and Scotland. Most cattle of this breed possess a

*Figure 3.* Dor Mac's Bardoliermere 10, *left*, and Burgess of Bee Mac, *right*, owned by Mrs. E. H. Heckett, Valencia, Pennsylvania.

Courtesy American Angus Association

*Figure 4.* ALF Battle Mixer 30, *left*, owned by John M. Lewis & Sons, Larned, Kansas, and H. C. Lady Larry 26, *right*, owned by Hillcrest Farms, Chester, West Virginia.

Courtesy American Polled Hereford Association and American Hereford Association, respectively

*Figure 5.* Scotsdale Jupiter, *left*, owned by S. G. Bennett, Georgetown, Ontario, Canada, and Lynwood Patience 2nd, right, owned by Lynwood Farm, Carmel, Indiana.

Courtesy American Shorthorn Breeders Association

great deal of size or scale. Colors range from whites to reds and roans, with red and white completing the color patterns. Solid red is the preferred color today by purebred breeders. Shorthorns are noted for their milking ability. Shorthorns also possess a quiet disposition and make rapid gains in the feed lot.

Polled Shorthorns are the same as Shorthorns except they are naturally polled. The early history of these cattle dates back more than eighty years.

**Other breeds**

Brahman cattle, imported from India in the last century, have enjoyed popularity in many of the southern states and along the coastal areas. This breed is noted for hardiness and tolerance to ticks, flies and extreme hot weather.

The Charolaise is a relatively new breed in this country. Their home is in France. They are large cattle and are white or light creamy colored.

A number of breeds have been developed in this country by crossing cattle of the various breeds with Brahmans. The best established of these breeds is the Santa Gertrudis which was started by crossing this breed with Shorthorns. Other breeds originating from crossing with Brahmans are: Brangus (Brahman x Aberdeen Angus); Beefmaster (Hereford x Shorthorn x Brahman); and Charbray (Charolaise x Brahman).

## Selection of Breeding Stock

**Females**

Dispersal sales offer new breeders an excellent opportunity to select proven breeding stock for foundation females. Purchasing cows that are already in production also makes it possible to receive a return on the investment in a minimum of time.

Dispersal sales do not occur often or at regular times, and therefore, breeders often must turn to other means of selecting breeding stock. Purchasing groups of high quality heifer calves at weaning time or yearling heifers ready for breeding, all from one breeder, makes it possible for the new breeder to establish a uniform cow herd and is one of the better ways to establish a new herd.

Consignment and production sales offer an opportunity for breeders to select outstanding individuals, but these sales are not usually recommended as the source for purchasing the entire foundation for the breeding herd. Such cattle are usually highly fitted and require a large investment.

Regardless of whether the cattle are bought at private treaty, dispersal sales, or consignment and production sales, or whether cows, year-

*Figure 6.* Good type heifers purchased at private treaty from one breeder make an excellent foundation for a breeding herd.

lings or heifer calves are purchased, new breeders should select the best quality females they can afford to buy.

**Herd bull**

After the breeder has selected his foundation group of females, the herd bull must be selected. One of the first things to remember is that the herd bull is "half the herd". In other words, the calf crop is equally influenced by the sire and the dam. A purebred sire should be selected that is superior to the cow herd. Select a bull that is strong in the points where the herd is generally weak. Purchasing bulls with proven transmitting ability or sons of such bulls increases the chances of getting a good breeding bull. The dam of the future herd sire should also be a good individual. Performance information, including feed-lot gains, should be given consideration.

Once a suitable herd bull prospect is found, the breeder should not hesitate about the purchase because the bull costs a few dollars more than was originally planned. Breeders should remember, however, that paying a high price does not make a bull a good breeding individual or one of the right kind. Sometimes a good bull can be purchased at very moderate price. In other words, make the individuality of the bull of first importance and the price secondary.

Joint ownership of a bull with another breeder often reduces the investment in this part of the beef enterprise. This plan may permit the purchase of a somewhat better prospect than might be possible under individual ownership. Arrangements of this sort usually work best where the bull is used artificially.

## Feeds for Beef Cattle

Beef production is a means of marketing home grown feed. For cattle to utilize these feeds efficiently, rations must be fed that furnish proper amounts and proportions of the nutrients required for the various body functions. The omission or too little of any one of the several essential nutrients lowers the efficiency of the entire ration and results in poorly fed cattle. Also both underfeeding and overfeeding result in less beef produced per unit of feed.

Rations must be not only efficient, but also economical. Economical feeding is based on good pasture, home grown grains and forages properly supplemented as needed with proteins and vitamins. The feeding value and protein content of forage crops is based not only on its legume content, but also on the date of harvesting. As is shown in table I, grasses or non-legumes have a satisfactory protein analysis when cut early.

Research conducted at Cornell University from 1953 to 1955 with hays cut at varying degrees of maturity and fed to weaned beef calves showed the early-cut hay to have a value of 126 percent of the value of medium-cut hay. The late-cut hay averaged only 70 percent of the value of the medium-cut forage.

There are five principal nutrients in balanced rations. These are carbohydrates, proteins, fat, minerals and vitamins.

Carbohydrates and fats are found in sufficient quantities in home grown feeds for a beef production program.

Proteins, which are used to build tissues and all the principal organs of the body, are furnished in small to moderate amounts by farm grains and more abundantly by legume forage and early-cut grasses, and pasture. Usually, however, supplements must be purchased to furnish part of the protein for young cattle and to help balance low nitrogenous roughages on the farm. Cattle receiving a liberal supply of grain should be fed a grain mixture containing 12 to 14 percent protein.

Salt is the most commonly needed mineral and should be available for cattle at all times. Other minerals often needed are calcium and phosphorus. In iodine and cobalt deficient areas, these minerals must

TABLE I. DIGESTIBLE NUTRIENTS, DIGESTIBLE PROTEIN, AND TOTAL PROTEIN CONTENTS OF ROUGHAGES[1]

| Cutting date | Approximate stage of growth | Non-legumes | | | Legumes | | |
|---|---|---|---|---|---|---|---|
| | | TDN | Dig. prot. | Total prot. | TDN | Dig. prot. | Total prot. |
| | | % | % | % | % | % | % |
| June 1 | Vegetative | 63 | 12.2 | 15.2 | 63 | 16.8 | 21.0 |
| June 15 | Bud | 57 | 9.0 | 11.3 | 57 | 13.1 | 16.4 |
| July 1 | Bloom | 50 | 6.0 | 7.5 | 50 | 9.2 | 11.5 |
| July 15 | Mature | 44 | 3.3 | 4.1 | 44 | 5.8 | 7.3 |
| Second cutting | | | | | | | |
| 5–9 week regrowth period | | 52 | 9.0 | 11.3 | 52 | 12.9 | 16.1 |

[1]Reid, Cornell University, Hoard's Dairyman, June, 1955.

be added. A simple mineral mixture can be made by mixing equal parts, by weight, of a trace mineralized salt and dicalcium phosphate.

There are but two vitamins that need consideration under usual beef cattle feeding conditions and neither will be deficient if good rations are fed. Vitamin A deficiency causes night blindness, slow growth, reduced resistance to respiratory diseases, and nerve degeneration. Cattle on pasture or those in barns receiving normal amounts of green, leafy roughages will have ample protection.

Vitamin D is required for normal bone growth as well as other body functions. Cattle exposed to the sunlight or getting sun-cured roughages will be protected.

## Common Feeds

### Corn

Corn is the best known feed for fattening cattle and is also excellent as a part of the grain ration for all beef cattle. Corn can be fed as coarsely ground grain or the whole ear can be ground and fed as corn-cob meal.

### Oats

Oats are higher in protein than corn and considered a better feed for growing than for fattening cattle, having a value of only 75 to 80 percent of corn in the fattening ration. They are, however, a very valuable feed for the cattle breeder. Oats are palatable, add bulk to the ration, and are excellent for use in the calf creep, for growing out young cattle and for use in the ration of breeding stock. They should be rolled, crushed or crimped except when fed to young calves.

**Barley**

This grain is just slightly lower in feed value for fattening cattle than corn. Experienced cattle feeders like to use it in rations of show cattle because of the smooth finish obtained. This grain also can be used to a moderate extent in all cattle fattening rations and in rations for growing out young cattle. It should be ground, crushed or rolled before feeding.

**Wheat**

Wheat is usually too expensive to be fed as a cattle feed. It is not as palatable as corn but has about the same feeding value. Where it is fed, it is best to have it compose not more than one-third of the grain ration. Wheat is very hard and should be coarsely ground or rolled.

**Cane Molasses**

Cane molasses is considered a palatable feed and is used in many rations for cattle being fitted for shows or sales. It also has a value of about 70 percent of the value of corn where used moderately in cattle fattening rations.

**Wheat Bran**

Wheat bran is a bulky feed and is higher in protein than farm grains. It is somewhat laxative, very palatable and regarded highly by purebred breeders in a fitting ration. This feed is also a good source of minerals, particularly phosphorus.

**Corn silage**

Well-eared corn silage is one of the most popular feeds with cattle producers, particularly where this feed can be grown economically on the farm. About 2.4 pounds of corn silage is equal to a pound of good quality hay in feeding brood cows. It is an excellent feed for all classes of breeding stock and for making cheap gains on steers.

**Pea-vine silage**

Farmers having access to pea-vine silage will find this an excellent feed for brood cows. It is higher in protein than corn silage and worth only slightly less as a feed for this class of livestock.

**Grass silage**

Grass silage is produced on most New York farms. Such a feed approaches corn silage in value for brood cows, but is only worth about 65 to 70 percent of the value of corn silage for feeding calves less than one year of age. Where both corn silage and grass silage are available, the grass silage should be fed to the older cattle and corn silage to the young stock.

**Legume hay**

Hays containing an abundance of alfalfa, clover, or trefoil furnish a liberal supply of proteins, minerals and vitamins. Where a large amount of good legume hay is being fed breeding cattle, no additional protein is needed in the ration.

*Figure 7.* Beef cows can be fed through the winter months on roughage alone. Rectangular hay racks are popular with New York beef producers.

### Grass hay

All-grass hays, such as timothy, unless early-cut, are low in protein and minerals and should be supplemented with a legume hay or a protein supplement. This type of feed can make up a considerable part of the brood cow ration.

### Straw

Straw should be thought of primarily as bedding because of its low nutritive value. Breeders will note, however, that cattle having access to a straw stack during the winter will eat a considerable amount of this feed. It must be supplemented with a protein supplement or a legume hay if much is fed.

### Protein supplements

Protein-rich feeds, such as linseed oil meal, soybean oil meal, and cottonseed meal are often needed to supplement farm grains. Linseed oil meal is generally preferred by cattlemen because of its palatability and conditioning effect, and because it results in the cattle having more bloom. Cattle fed linseed oil meal seem to have a more mellow hide and a glossier hair coat than those fed many of the other protein-rich feeds. A mixture of half linseed meal and either soybean oil meal or cottonseed meal will give equal results.

**Beef cattle prefer coarsely ground or pelleted feeds**

One of the most common mistakes in preparing feeds for beef cattle in New York State is that of grinding the feeds too fine. Finely ground feeds seem to limit consumption and make it more difficult to fatten cattle readily. Grains, however, must be coarsely ground to prevent too much feed from passing through the body undigested. Burr mills and rollers or crimpers are therefore popular.

It is not necessary to grind feeds for calves up to 6 to 10 months of age. They will usually eat slowly enough to grind their own feed. Most breeders, however, prefer to grind corn, barley and wheat coarsely even for feeding calves.

Hays can be fed in almost any form. Whether the hay should be stored loose, baled, chopped, or stacked outside depends on the most economical and convenient method of harvesting, storing and feeding.

## Feeding the Breeding Herd

**Winter or barn feeding period**

The breeding herd should be sorted so that the cattle can be fed according to age and class of cattle.

For the most economical program, the poorest roughages should be used for the mature cow herd. The best hay available for the beef herd should be fed to the young cattle.

Dry cows should be wintered well but it can and should be done on roughage alone. They should be fed hay at the rate of 1¾ to 2 pounds per hundred weight per day. Corn silage may replace hay on the basis of about 2½ pounds per pound of hay; grass silage can replace hay on the basis of 3 pounds of silage per pound of hay. Poor quality hay, corn stover, and straw may be used as part of the winter ration. One pound of a protein supplement should be fed per head daily if the ration does not include 4 to 6 pounds of legume hay or early-cut grass hay.

Cows nursing calves should be full-fed on roughage and in addition may need to be fed about 2 pounds of grain per head daily—depending on the condition of the cows and whether or not good quality corn silage is available. If the forage is not high in legume content, add 1 pound per head daily of a protein-rich feed.

Yearling heifers which have been bred to calve in the summer should receive a ration of hay, or hay and silage according to appetite, and in addition about two pounds of grain per head daily. If corn silage is used and the hay is of good quality, the grain may be omitted for heifers that are well grown.

## Rations for Dry Brood Cows

**Ration 1**

Legume hay or mixed legume and grass hay (at least ⅓ legume), 18–22 lbs.

**Ration 2**

Mixed legume hay, 10 lbs.
Corn silage, 20–30 lbs.

**Ration 3**

Mixed or grass hay, 10 lbs.
Grass silage, 25–35 lbs.

**Ration 4**

Grass hay, 18–22 lbs.
Protein supplement, 1 lb.
Ground limestone, .1 lb.

**Ration 5**

Mixed hay, 10 lbs.
Corn stover or straw, 12–16 lbs.

**Ration 6**

Mixed or grass hay, 10 lbs.
Pea-vine silage, 25–35 lbs.

## Rations for Heifer Calves

**Ration 1**

2–4 lbs. grain
8–10 lbs. corn silage
4–5 lbs. legume hay

**Ration 2**

2–4 lbs. grain
1 lb. protein supplement
8–10 lbs. non-legume hay

**Ration 3**

6–10 lbs. grain
Silage (corn or grass) according to appetite
Hay according to appetite

First-calf heifers that have been "pulled down" by nursing a calf may need to be fed either with the yearling heifers or separately from the cow herd so that they can get additional care.

Heifer calves that are from 6 to 8 months of age at the beginning of the winter management season should be fed good quality forage and a liberal amount of grain, particularly if the breeder has a purebred herd and sells breeding stock. Commercial breeders who plan to breed heifers to calve at about 2½ years of age should feed 2 to 4 pounds of grain per head daily to the heifer calves. Purebred breeders who sell breeding stock should feed more, possibly up to 6 to 10 pounds per day. In all cases, calves of this age should receive the best quality hay available for the beef herd.

The herd bull should be fed during the winter season to a healthy and vigorous condition, but not fattened to the extent that he will become sluggish during the breeding season. Young bulls should be fed grain liberally so that they can

be grown to their proper size and development. A satisfactory grain mixture can be made by using equal parts by weight of corn, oats and barley and one part protein supplement added to each nine parts of grain. For older bulls it is advisable to feed more oats and less corn.

Winter calves should have access to a creep with grains plus a protein supplement forming the ration. For details on ingredients see page 29.

**Summer or pasture season**

Adequate pasture and free access to salt and water are usually the only feeds beef cattle need in summer except where purebred breeders are developing young cattle for shows and sales.

Most New York State producers will have adequate pasture during the early part of the grazing season, but often find a shortage of this feed by July or early August. The rotation of pastures will increase carrying capacity. Aftermath grazing will often bridge the gap between the early summer and the early fall pasture seasons.

Some producers have found that rye sown in the fall will extend the pasture season and also make it possible to turn cattle out to pasture several weeks earlier in the spring than where this program is not practiced. Such land can be plowed in the late spring and planted to corn and thus make double use of the land.

## Feeding Steers and Heifers for Market

Breeders who have grain available may find it advisable to feed the steers and some of the heifers for the slaughter market. Steers should be marketed when they are 15 to 24 months of age and weigh 850 to 1100 pounds. Heifers should be marketed at lighter weights (750 to 900 pounds) and at somewhat younger ages.

In general, two steer feeding plans are practiced successfully in New York State. One program often followed by breeders who have an abundance of corn to market is to start the steer calves on a full grain feeding program after weaning and to market them as high choice to prime cattle after seven to ten months of grain feeding. Such a program will necessitate about 3000 pounds or more of concentrates per animal plus some roughage, such as corn silage and hay. Cattle fed on this program can be self-fed grain and should never go out of dry-lot once they are on full feed.

A second program for fattening cattle and one that is popular with farmers who have a minimum of grain but have an abundance of high quality forage is the deferred-feeding plan. Calves after weaning are "roughed" through the winter

on a growing ration composed of high quality hay and/or silage plus two to three pounds of concentrates per head daily. Calves fed in this way will gain about one pound per day and will make excellent gains when turned to pasture the following spring. Grain can be fed during the grazing season and the steers marketed in the fall following a few weeks dry lot feeding. Another good feeding and management program during the summer is to graze the steers without grain until August or whenever the grass becomes scarce and then full-feed grain in dry-lot for about 100 days.

Either of the above deferred feeding programs will utilize a considerable amount of roughage and only about half as much grain as the first program mentioned, or about three-fourths ton of grain per steer. Cattle fed as described under the deferred feeding program will usually grade high good to choice as slaughter cattle when marketed if good to choice feeder grade cattle are used in the feeding program.

Heifers will fatten faster than steers in the feed lot although they do not make more rapid gains. Consequently they will be ready for market from 30 to 60 days sooner than steers and should be marketed at lighter weights.

*Figure 8.* Beef calves will make a good market for grain and forage produced on the farm.

Ground shelled corn or corn and cob meal is a satisfactory ration for fattening cattle while on green pasture. Nine parts corn to one part protein supplement, plus legume or early-cut grass hay, is a satisfactory ration for cattle in dry lot.

## Getting Cattle on Feed

Cattle that are to be full-fed grain should be started with hay fed according to appetite plus about 2 pounds of grain per head daily. Increase the grain at the rate of 1 pound per day for several days, then only at the rate of 1 pound every second or third day. As the cattle approach full-feeding, be careful not to increase the amount to more than will be consumed in 30 to 45 minutes. If the cattle should go "off-feed", the grain ration should be reduced one-third to one-half for a few feedings and then increased gradually as the cattle regain their appetite. Cattle on full-feed will eat about 2 pounds of grain daily per hundredweight of body weight.

Keep hay before the cattle at all times. Bulky feeds such as crimped or crushed oats may make up a large part of the ration in the early part of the feeding period. Whole oats are often used when starting weaned calves on feed.

## Herd Management

### Time of breeding

The successful commercial breeder and the purebred breeder who does not exhibit calves on the show circuit should plan the breeding program so that the calves will be dropped in as short calving period as possible. Such a program simplifies the management program of the calves and also makes it possible to have a uniform group of calves to sell at one time. Breeders who sell feeder calves in October and early November will profit by having cows calve early—February, March and early April. Turn the bull with the breeding herd about May 15 to start the calves coming in late February.

Purebred breeders who plan to exhibit at fairs will want to have some calves dropped in the early part of the age classification. This will mean some calves will have to be born in the fall as well as in the winter months and possibly a few in the summer.

It is false economy to think that leaving the bull with the herd throughout the year and having cows calve as soon as they will breed back is a good program. Healthy cows bred to fertile bulls will readily conceive and drop calves

## Table II. Gestation Table—Based on 283 Days' Pregnancy

| Date of Service. | Calf Due. | Date of Service. | Calf Due. | Date of Service. | Calf Due. | Date of Service. | Calf Due. | Date of Service. | Calf Due. | Date of Service. | Calf Due. | Date of Service. | Calf Due. | Date of Service. | Calf Due. | Date of Service. | Calf Due. | Date of Service. | Calf Due. | Date of Service. | Calf Due. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Jan** | **Oct** | **Feb** | **Nov** | **Mch** | **Dec** | **Apl** | **Jan** | **May** | **Feb** | **Jun** | **Mch** | **Jul** | **Apl** | **Aug** | **May** | **Sep** | **Jun** | **Oct** | **Jul** | **Nov** | **Aug** | **Dec** | **Sep** |
| 1 | 10 | 1 | 10 | 1 | 8 | 1 | 8 | 1 | 7 | 1 | 10 | 1 | 9 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 9 |
| 2 | 11 | 2 | 11 | 2 | 9 | 2 | 9 | 2 | 8 | 2 | 11 | 2 | 10 | 2 | 11 | 2 | 11 | 2 | 11 | 2 | 11 | 2 | 10 |
| 3 | 12 | 3 | 12 | 3 | 10 | 3 | 10 | 3 | 9 | 3 | 12 | 3 | 11 | 3 | 12 | 3 | 12 | 3 | 12 | 3 | 12 | 3 | 11 |
| 4 | 13 | 4 | 13 | 4 | 11 | 4 | 11 | 4 | 10 | 4 | 13 | 4 | 12 | 4 | 13 | 4 | 13 | 4 | 13 | 4 | 13 | 4 | 12 |
| 5 | 14 | 5 | 14 | 5 | 12 | 5 | 12 | 5 | 12 | 5 | 14 | 5 | 13 | 5 | 14 | 5 | 14 | 5 | 14 | 5 | 14 | 5 | 13 |
| 6 | 15 | 6 | 15 | 6 | 13 | 6 | 13 | 6 | 12 | 6 | 15 | 6 | 14 | 6 | 15 | 6 | 15 | 6 | 15 | 6 | 15 | 6 | 14 |
| 7 | 16 | 7 | 16 | 7 | 14 | 7 | 14 | 7 | 13 | 7 | 16 | 7 | 15 | 7 | 16 | 7 | 16 | 7 | 16 | 7 | 16 | 7 | 15 |
| 8 | 17 | 8 | 17 | 8 | 15 | 8 | 15 | 8 | 14 | 8 | 17 | 8 | 16 | 8 | 17 | 8 | 17 | 8 | 17 | 8 | 17 | 8 | 16 |
| 9 | 18 | 9 | 18 | 9 | 16 | 9 | 16 | 9 | 15 | 9 | 18 | 9 | 17 | 9 | 18 | 9 | 18 | 9 | 18 | 9 | 18 | 9 | 17 |
| 10 | 19 | 10 | 19 | 10 | 17 | 10 | 17 | 10 | 16 | 10 | 19 | 10 | 18 | 10 | 19 | 10 | 19 | 10 | 19 | 10 | 19 | 10 | 18 |
| 11 | 20 | 11 | 20 | 11 | 18 | 11 | 18 | 11 | 17 | 11 | 20 | 11 | 19 | 11 | 20 | 11 | 20 | 11 | 20 | 11 | 20 | 11 | 19 |
| 12 | 21 | 12 | 21 | 12 | 19 | 12 | 19 | 12 | 18 | 12 | 21 | 12 | 20 | 12 | 21 | 12 | 21 | 12 | 21 | 12 | 21 | 12 | 20 |
| 13 | 22 | 13 | 22 | 13 | 20 | 13 | 20 | 13 | 19 | 13 | 22 | 13 | 21 | 13 | 22 | 13 | 22 | 13 | 22 | 13 | 22 | 13 | 21 |
| 14 | 23 | 14 | 23 | 14 | 21 | 14 | 21 | 14 | 20 | 14 | 23 | 14 | 22 | 14 | 23 | 14 | 23 | 14 | 23 | 14 | 23 | 14 | 22 |
| 15 | 24 | 15 | 24 | 15 | 22 | 15 | 22 | 15 | 21 | 15 | 24 | 15 | 23 | 15 | 24 | 15 | 24 | 15 | 24 | 15 | 24 | 15 | 23 |
| 16 | 25 | 16 | 25 | 16 | 23 | 16 | 23 | 16 | 22 | 16 | 25 | 16 | 24 | 16 | 25 | 16 | 25 | 16 | 25 | 16 | 25 | 16 | 24 |
| 17 | 26 | 17 | 26 | 17 | 24 | 17 | 24 | 17 | 23 | 17 | 26 | 17 | 25 | 17 | 26 | 17 | 26 | 17 | 26 | 17 | 26 | 17 | 25 |
| 18 | 27 | 18 | 27 | 18 | 25 | 18 | 25 | 18 | 24 | 18 | 27 | 18 | 26 | 18 | 27 | 18 | 27 | 18 | 27 | 18 | 27 | 18 | 26 |
| 19 | 28 | 19 | 28 | 19 | 26 | 19 | 26 | 19 | 25 | 19 | 28 | 19 | 27 | 19 | 28 | 19 | 28 | 19 | 28 | 19 | 28 | 19 | 27 |
| 20 | 29 | 20 | 29 | 20 | 27 | 20 | 27 | 20 | 26 | 20 | 29 | 20 | 28 | 20 | 29 | 20 | 29 | 20 | 29 | 20 | 29 | 20 | 28 |
| 21 | 30 | 21 | 30 | 21 | 28 | 21 | 28 | 21 | 27 | 21 | 30 | 21 | 29 | 21 | 30 | 21 | 30 | 21 | 30 | 21 | 30 | 21 | 29 |
| 22 | 31 | | **Dec** | 22 | 29 | 22 | 29 | 22 | 28 | 22 | 31 | 22 | 30 | 22 | 31 | | **Jul** | 22 | 31 | 22 | 31 | 22 | 30 |
| | **Nov** | 22 | 1 | 23 | 30 | 23 | 30 | | **Mch** | | **Apl** | | **May** | | **Jun** | 22 | 1 | | **Aug** | | **Sep** | | **Oct** |
| 23 | 1 | 23 | 2 | 24 | 31 | 24 | 31 | 23 | 1 | 23 | 1 | 23 | 1 | 23 | 1 | 23 | 2 | 23 | 1 | 23 | 1 | 23 | 1 |
| 24 | 2 | 24 | 3 | | **Jan** | | **Feb** | 24 | 2 | 24 | 2 | 24 | 2 | 24 | 2 | 24 | 3 | 24 | 2 | 24 | 2 | 24 | 2 |
| 25 | 3 | 25 | 4 | 25 | 1 | 25 | 1 | 25 | 3 | 25 | 3 | 25 | 3 | 25 | 3 | 25 | 4 | 25 | 3 | 25 | 3 | 25 | 3 |
| 26 | 4 | 26 | 5 | 26 | 2 | 26 | 2 | 26 | 4 | 26 | 4 | 26 | 4 | 26 | 4 | 26 | 5 | 26 | 4 | 26 | 4 | 26 | 4 |
| 27 | 5 | 27 | 6 | 27 | 3 | 27 | 3 | 27 | 5 | 27 | 5 | 27 | 5 | 27 | 5 | 27 | 6 | 27 | 5 | 27 | 5 | 27 | 5 |
| 28 | 6 | 28 | 7 | 28 | 4 | 28 | 4 | 28 | 6 | 28 | 6 | 28 | 6 | 28 | 6 | 28 | 7 | 28 | 6 | 28 | 6 | 28 | 6 |
| 29 | 7 | ..... | ..... | 29 | 5 | 29 | 5 | 29 | 7 | 29 | 7 | 29 | 7 | 29 | 7 | 29 | 8 | 29 | 7 | 29 | 7 | 29 | 7 |
| 30 | 8 | ..... | ..... | 30 | 6 | 30 | 6 | 30 | 8 | 30 | 8 | 30 | 8 | 30 | 8 | 30 | 9 | 30 | 8 | 30 | 8 | 30 | 8 |
| 31 | 9 | ..... | ..... | 31 | 7 | ..... | ..... | 31 | 9 | ..... | ..... | 31 | 9 | 31 | 9 | ..... | ..... | 31 | 9 | ..... | ..... | 31 | 9 |

every 12 months. It is not expecting too much to try and have the calves dropped within a ten week period.

**Number of cows per bull**

Bulls should not be placed in service until they are about 16 months of age and then pasture bred to not more than 10 or 12 females. Bulls of somewhat younger ages can be hand-bred to a few females. A well developed two-year-old bull will usually serve up to 25 cows satisfactorily under the pasture mating system. A mature bull will handle up to 40 cows. Where larger numbers are to be used, hand breeding should be practiced.

It is good management to have an extra bull on the farm to take the place of the herd sire in case something should happen to him. Often times a young bull that is being developed can be used in case of necessity. A breeder who has as many as 30 or more cows will usually find it practical to have a spare bull or junior herd sire on the farm.

Range producers normally plan to use 4 bulls per 100 cows.

**Age to breed heifers**

Heifers that have been properly grown out and weigh as much as 700 to 800 pounds when 15 to 18 months of age can be bred so that they will calve when 24 to 27 months of age. Such a program makes it possible to obtain an extra calf over the program where the heifers are not bred to calve until 3 years old.

If heifers have been fed little or no grain during the first winter season and are somewhat small in size, the breeding program should be delayed so that the heifers will calve at three years of age.

Heifers that are bred to calve at 2 years may appear somewhat disappointing after weaning their first calf, but will grow into normal cows if yarded separately from the cow herd the first winter after calving and allowed liberal feed through the winter months.

**Artificial insemination**

Artificial insemination is not a practical program for the commercial producer or the small purebred breeder who does not practice hand breeding. Purebred breeders who have outstanding sires and plan to hand breed may want to use their sires artificially and make it possible to spread their use over a large number of females. Special short courses are conducted at Cornell University to assist breeders who wish to learn the technique of using their sires artificially.

Breed associations have placed certain restrictions on the practice of artificial insemination. Therefore, before adopting such a program, purebred breeders should be familiar with the breed association regulations.

**Cow at calving time**

A high percentage calf crop is one of the most important points in a successful cow and calf opera-

tion. Most of the death losses occur at calving time or within the first few weeks thereafter. The management program during the calving season, therefore, can have a great influence on the percentage calf crop. Cows are often nervous at calving time and will usually give a good account of themselves if left alone and afforded a dry place which is well bedded and protected from the wind, rain, and snow. Cows calving on pasture during the pasture season have ideal conditions for bringing their youngster into the world.

Purebred breeders often try to have a large roomy box stall available for a maternity ward. Commercial producers and small purebred breeders often divide their cattle shed and move the cows out of the breeding herd over into a less crowded, well bedded area when calving time arrives. The "maternity ward" should open out into a well drained yard that gives the cattle plenty of exercise and still keeps the calves free from muddy, filthy barnyards.

A good cattleman watches the first-calf heifers and sees that they get help if necessary. Give the cow an opportunity to deliver the calf normally before rushing in to assist. Normally the calf's front legs appear first, with the head resting on these legs. If the calf is coming backwards, call the veterinarian immediately.

The placenta or afterbirth should be expelled within 12 hours after calving. If it is retained for 20–24 hours, a veterinarian should be contacted.

Where it is difficult in the spring to keep the calves out of the mud, it is often advisable to turn the cows out into a wooded area which is well drained and provides the cows a dry place to keep their youngsters. Several New York breeders have found a well protected area near the barnyard to be a satisfactory maternity ward and a way of reducing losses at calving time.

If a calf is lost at calving time, another calf should be given to the cow to raise. This can usually be accomplished by purchasing a bob veal of a few days of age at the local auction market or from a nearby farmer. Usually the only calves available are dairy or dairy crossbred calves, but at least the cow can produce some income for her owner. The cow may not accept the new calf at first. If not, tie her in a box stall and make her let the calf nurse several times per day. She will usually mother the calf after a few days to a weeks time.

**Castration**

It is advisable to castrate all male calves in the commercial herd before they are 8 to 10 weeks of age. It is easier on the calf and also less work for the operator if the calves are castrated when young.

In purebred herds it is usually desirable to let the bull prospects grow until about 6 months of age

before making the final decision on which calves should be castrated.

Castrating with a knife is the most common and surest method. All the equipment necessary is a sharp knife, some disinfectant and a clean pair of hands.

The use of an emasculatome or a pincher type of instrument has proven popular among many small breeders in past years, but is losing favor because of the "skips" or "misses" that often occur. The advantage of the pincher or emasculatome method is that the operation is bloodless, but unless a good instrument is used and the operator performs an excellent job, dissatisfaction is often the result.

In some states calves that have been "pinched" are not allowed to be sold through regular feeder calf sales. This is because so many of the calves have not been properly castrated.

A new instrument for bloodless castration called the "elastrator" is being used by some breeders on calves up to a month of age. By use of a special instrument, a rubber band is placed around the scrotum above the testicles which stops the blood circulation and causes the scrotum and testicles to slough or drop off. This method is not as popular or recommended as highly as the "knife" but is probably better than the pincher method for the man who cannot stand the sight of blood.

**Dehorning**

All commercial calves in horned herds should be dehorned. In fact, feeder calf sales regulations in New York State require that such calves be dehorned before they are acceptable.

Several successful methods for dehorning can be used. The hot-iron method is very desirable for calves up to 10 to 12 weeks of age. Such a method is easy on the calf and simple and easy to perform. Cattlemen who dehorn by this method should be sure to burn until a deep, rich, copper-colored ring is noted around the horn button. Failure to do a satisfactory job is usually caused by the lack of sufficient burning. Tests conducted at Cornell University where calves were burned severely did not show any adverse effects.

Several good electric dehorning irons are on the market. Bell-shaped irons can also be purchased which can be heated by a torch or open fire.

Another method of dehorning calves is by the use of caustic soda or potash in stick or paste form which should be used when the calves are a few days to a couple of weeks of age. The hair should be clipped around and away from the horn button and lard or a similar substance should be applied around the area to keep the caustic from burning the skin. Apply the paste or caustic stick to the horn button and rub vigorously in a circular

motion. The chemical deadens the horn tissue and prevents further horn growth. Calves treated with caustics should be protected from rain for a few days following treatment. Care should be exercised in using caustics, for they will cause serious burns if they come in contact with the hands of the operator.

The Barns calf dehorner is a fast and simple tool for use on calves with horns ½ to 3 or 4 inches long. The disadvantage of this tool is that severe bleeding may occur. Searing with a hot iron or padding with a cotton or flannel patch is sometimes necessary.

Dehorning tubes are a fast and efficient way of dehorning calves at a young age. Place the tube over the horn, press down and with a circular scooping motion remove the small horn button.

For older cattle the convex or "V" blade dehorner, or a saw are probably the best methods. In each case severe bleeding may take place.

**Identification of cattle**

It is impossible to keep adequate records on the beef herd unless cattle can be individually identified. Brood cows should wear neck chains or have horn brands or, in the case of commercial cattle, should be branded.

Breeders of registered cattle are required to tattoo their calves for permanent identification. This can be done when the calf is only a few days old or ear tagged at birth and tattooed at a later age, possibly at weaning time. The numbers in the tattoo plyers should be checked on a piece of cardboard before puncturing the ear. Otherwise some of the numbers may be put in backwards or upside down. It is necessary that the ear be clean and plenty of tattoo ink rubbed into the punctured area to do a satisfactory job of tattooing. It is advisable to place the tattoo in both ears so that if the tattoo in one ear becomes illegible, the tattoo in the other ear may be read.

Commercial cows can be branded for lifetime identification by branding a number on the hip or side of the animal. These brands will need to be clipped during the winter in order to make the brand legible. A satisfactory branding system is to make the last digit in the number correspond with the year in in which the animal is born. By such a system, it is easy to recognize the age of cows in the herd. For example, all heifers born in 1957 would be branded with a number ending in seven, such as, 07, 17, 27. A cow branded 450 would be a 1950 cow. Of course, cows ten years apart in age will have brands ending in the same digit but breeders can readily distinguish between cows of this difference in age. With this system, up to 100 cattle can be branded with individual numbers in any year without using more than three numerals per animal.

It is not necessary to put neck chains or have other identification

*Figure 9.* Neck chains are not needed on these commercial cows. Each cow has been branded with an individual number.

marks on herd bulls, since the owner should be able to recognize these individuals.

### Culling the cow herd

A successful beef breeder not only keeps a good bull, but culls his cow herd rigidly. Cows should not be culled on their appearance alone, but on their records.

For the commercial producer who is selling feeder calves, weighing and grading the calves at weaning time provides excellent data for culling the cow herd. Cows that do not produce good quality calves of acceptable weight and type should be culled from the herd. Purebred breeders should, in addition, consider pedigree and the outcome of the calves at later ages.

Some commercial breeders have a veterinarian make a pregnancy examination of all the cows about two or three months after the bull is removed from the herd in the fall. Such a program makes it possible to cull cows that will not calve the following year and save the expense of keeping these cows through the winter months.

Cows should not be culled because of age unless the effects are shown in the weight and quality of the offspring. Some cows will produce good calves regularly until 15 to 20 years of age, while others will become "old cows" when only 12 to 14 years old.

### Creep-feeding

Breeders selling purebred breeding stock and commercial producers

selling feeder calves usually find a creep-feeding program is profitable. Creep feeding is also economical for breeders who plan to feed their calves for the market without losing the baby fat on the youngsters. It is not practical for commercial producers, however, who feed their calves through the winter primarily on roughage and manage them so that they will lose this baby fat.

Whole oats make a good ration for starting calves on feed. As the calves become older, corn should be added to the ration as well as a protein supplement. If the feed is ground, be sure to keep it coarse.

A few satisfactory creep rations are as follows:

**Up to 3–4 Months of Age**

Whole oats
or
2 parts whole oats
1 part cracked corn
or
2 parts whole oats
1 part cracked corn
1 part cracked barley

**3–4 Months of Age to Weaning**

3 parts whole oats
4 parts cracked corn
1 part protein supplement
or
3 parts whole oats
3 parts cracked corn
3 parts cracked barley
1 part protein supplement

Some of the advantages of creep-feeding are: (1) heavier calves with more bloom at weaning time; (2) calves more uniform in appearance; (3) calves that grade somewhat higher and sell for a higher price per pound; and (4) calves that are accustomed to eating grain and therefore will start on feed more quickly after weaning.

**Age to wean calves**

Calves should be weaned when 6 to 8 months of age. Calves that have been dropped in the late winter and early spring are ready for weaning when the cows are yarded in the fall or at the time the feeder calf sales are held in late October or November.

**Keep cattle well bedded**

Box stalls, sheds and other shelters used to house cattle should be kept dry and well bedded. A good cattle feeder once said, "Cattle well bedded are half fed".

*Figure 10.* Well-bedded cattle are comfortable cattle. A good cattleman will attempt to have adequate bedding for the herd during the barn-feeding season.

Cattle kept in box stalls should be bedded daily. Those housed in open sheds should get new bedding daily or at intervals of not more than two to four days. Cattle kept in single box stalls usually need about 8 to 10 pounds of bedding material per day. Cattle housed in open sheds can be kept comfortable on half that amount.

Straw is the most commonly used bedding material. Other materials such as corn stalks, low quality hay, wood chips, shavings, and other absorbing type material can also be used.

Although shavings, sawdust and material of this kind have satisfactory absorbing qualities, they "punch up" much worse than straw or corn stalks.

TABLE III. ABSORPTION CAPACITY OF BEDDING MATERIALS[1]

| Bedding material | Pounds of litter required to absorb 100 pounds of liquid |
|---|---|
| Oat straw | 35 |
| Wheat straw | 45 |
| Rye straw | 45 |
| Chopped straw | 20–30 |
| Corn stalks (shredded) | 25–35 |
| Sawdust | 25 |
| Wood shavings (soft wood) | 25 |
| Wood shavings (hard wood) | 45 |

[1]"Beef Cattle" by Prof. Roscoe R. Snapp.

## Performance Testing

Beef cattle breeders have made progress during the past century in improving the type and quality of beef cattle. Breeders, however, need more "measuring sticks" than pedigree and visual appraisal to make further improvement. Feed lot gains, feed efficiency, weaning weights and breeding records provide additional information for breeders to use in planning breeding and culling programs.

### Definition

Performance testing of beef cattle can be defined as the systematical evaluation of breeding stock on the basis of an animal's performance on certain traits of economic importance and using this information as a basis for selecting breeding stock. Some of these traits are: rapidity and efficiency of gain, mothering ability, type and quality, and freedom from inherited abnormalities.

Progeny testing, which measures an animal's transmitting ability through the performance of the offspring, is often an important part of performance testing.

To measure these economic factors and make use of the information in selecting superior breeding stock, adequate records, scales and a visual appraisal of the animals are necessary.

**Weaning weights**

Weaning weights are important information to the breeder who is striving for a herd of efficient beef cattle. This information is of special value to the producer of feeder calves. The weights at weaning age measure the ability of the brood cow to produce sufficient milk to grow a husky calf and also indicate, to a certain extent, the calf's inheritance from its sire and dam to make rapid gains.

Weaning weights are influenced materially by sex and by the age of the brood cow. Bull calves usually gain from 2 to 4 percent faster than steers, and steer calves will outgain heifers by as much as 5 to 7 percent.

Five to ten year old cows produce heavier calves than do cows at younger or older ages. To correct weaning weights for the age of dam, about 55 pounds should be added to the weights of calves produced by two-year-old heifers, 25 pounds for calves of three-year-olds, and 10 pounds for calves of four-year-old cows. Cows over ten years of age often wean calves of somewhat lighter weight. In some cases it may be advisable to correct the weaning weights of the calves from old dams.

The average weights of heifers and male calves produced under normal to slightly higher than average New York conditions are shown in table IV on page 35.

**Post-weaning gains**

The ability to make rapid gains following weaning time is highly heritable. Numerous investigators have found heritability of post-weaning feed lot gains to be as high as 50 to 60 percent. This means that young bulls that gain 50 pounds more than the breed average over a given period of time would be expected to sire calves that would

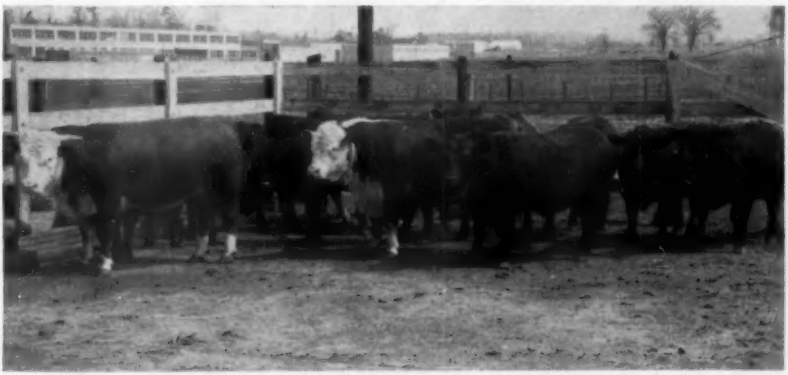

*Figure 11.* Bull calves on a group feeding performance testing program at Cornell University. The bulls were owned by seven breeders. Top-gaining bull averaged 3.11 pounds daily gain and the low-gaining bull, 1.98 pounds.

gain from 10 to 15 pounds more per animal than those sired by bulls that were about average in this respect.

All bulls should be feed-lot tested for at least 140 days following weaning. Heifer calves to be kept for replacement or for breeding stock should be weighed not only at weaning time, but again at about eighteen months of age. Only young cattle of acceptable type that make rapid gains and approach or attain satisfactory weights should be considered suitable for breeding stock.

Breeders should keep in mind that feed-lot gains made on one farm may differ from those made on another because of different management and other environmental conditions. Consequently feed-lot gain information has the most value in evaluating cattle within a given herd.

## Economy or efficiency of gain

Fortunately cattle that gain rapidly usually gain efficiently. Therefore, when breeders select young cattle that make rapid gains, they are usually selecting the cattle that gain most efficiently.

In view of the great influence exerted by the bull in the breeding

COW PERFORMANCE RECORD

Name and/or chain or brand number _____ Date of Birth _____

Sire _____ Dam _____

Weaning Data

Age (in days) _____

Adjusted weight _____

Grade or type score _____

Major faults _____

_____

Yearling Data

Age (in days) _____

Weight _____

Feed-lot test: Yes__No _____

Av. daily gain _____

Grade or type score _____

Remarks _____

_____

CALF RECORD

| Pre-Weaning Data | | | | | | | | | Post-Weaning Data | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Calf No. | Date of Birth | Sex | Sire | Age at Weaning Time (Days) | Weaning Grade or Type Score | Adjusted Weaning Wt. | Dev. Above or Below Av. or Adjusted Daily Gain | Days on Test | Weight | | Av. Daily Gain | Grade or Type Score | Remarks |
| | | | | | | | | | | Start | Finish | | | |
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*Figure 12.* A performance record should be kept on each cow in the herd.

herd, it is desirable where practical to obtain individual feed consumption information when the bull is on test. If this information is available, it should be highly regarded in selecting the herd sire.

**Quality and type or confirmation**

Quality and type are of particular importance in beef cattle breeding programs. Cattle breeders over the past years have developed the kind of beef animals that sell for premium prices on the feeder and slaughter market and produce carcasses that are sought by processors. Any successful program must consider quality and type if the interest of all the cattle segments are to be served and a constructive program continued in cattle breeding. Programs failing to consider these factors will destroy some of the improvement made by the breeder.

All calves should be scored for type and quality at weaning time, and calves not measuring up to the desired standards should not be given further consideration as breeding stock. Bull calves should be scored again at the close of the feed-lot testing period, and only those of desirable type should be considered suitable as future herd sires. Heifer calves should be type-scored at weaning time and again at 18 months of age.

**Records and equipment needed**

A performance testing program requires simple but adequate records. Brood cows need to be identified. Birth dates, weaning weights and type scores, and post-weaning feed-lot records which include additional scores and weights at 18 months of age are important data.

*Figure 13.* A "snorter" dwarf about six months of age. Note the small size, extremely paunchy belly, restricted heart girth and up-turned nose.

Every beef breeder, whether commercial or purebred, should keep individual cow record sheets on his herd which should contain such information as calving dates, weaning weight and score, and other post-weaning information. Figure 12 is an example of a satisfactory cow performance record.

**Dwarfism**

Dwarfism is the most commonly known inherited abnormality in beef cattle. During the early 1950's many beef herds were plagued with the appearance of the "snorter" dwarf. This freak or midget has appeared in all of the major beef breeds with increased frequency in some breeds and strains during this period.

Many of the dwarfs die at birth or within the first few weeks thereafter. Few live to more than six or seven months of age. Those that mature are so-called midgets and have no practical value. Most breeders destroy the dwarf as soon as it is recognized.

Dwarfs may first appear to the new breeder to be outstanding calves. These calves, however, soon develop an extremely paunchy belly, protruding forehead and sharply dished face, sometimes an undershot jaw, and a lack of coordination in their gait or movement.

Scientists seem to be in agreement that the snorter dwarf condition is inherited as a simple recessive character. Therefore, the occurrence of a dwarf calf assures the breeder that both the parents of the calf are carriers for the inheritance of this abnormality and should therefore be eliminated from the breeding herd.

Satisfactory methods or techniques have not been developed to definitely identify the "clean" individual from the carrier animal. Several methods, however, have been used with partial success and offer possibilities. Until these new methods can be perfected, "clean" pedigree and progeny testing appears to be the only sound approach to eliminating this defect from the breeding herd.

Other types of dwarfism have occurred in beef cattle, but with much less frequency than the snorter type. Any abnormalities that are uncovered in the breeding herd should be investigated and if found to be inherited should eliminate the animal in question from further use as a breeder.

**Beef production project**

For the purpose of collecting information that would help the Extension Service to develop a stronger cow and calf program in the State, a program was initiated in 1947 which included the weighing and grading of calves at weaning time and the studying of the management program on each farm. The program was offered to breeders who had 10 or more calves dropped between February 1 and July 1. The data collected also gave cooperators an opportunity to check the weights and grades of their calves with other producers in the State and furnished the breeder with a measuring stick to assist in the culling program.

This program was named the "Beef Production Project" and has been continued with 15 to 25 breed-

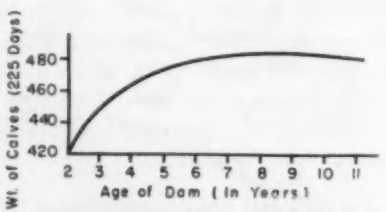


*Figure 14.* Data collected in the Beef Production Project from 1949–54, inclusive, including weaning weights of 2446 calves.

TABLE IV. WEIGHT-FOR-AGE TABLE CALCULATED FROM 2838 INDIVIDUAL CALF WEIGHTS OBTAINED IN THE BEEF PRODUCTION PROJECT FROM 1949 TO 1952

| Age (Days) | Wt. of calves | | Age (Days) | Wt. of calves | |
|---|---|---|---|---|---|
| | Male | Female | | Male | Female |
| 150 | 364 | 344 | 200 | 456 | 417 |
| 155 | 373 | 352 | 205 | 465 | 424 |
| 160 | 382 | 359 | 210 | 474 | 431 |
| 165 | 391 | 366 | 215 | 483 | 439 |
| 170 | 400 | 373 | 220 | 492 | 446 |
| 175 | 410 | 381 | 225 | 502 | 453 |
| 180 | 419 | 388 | 230 | 511 | 460 |
| 185 | 428 | 395 | 235 | 520 | 468 |
| 190 | 437 | 402 | 240 | 529 | 475 |
| 195 | 446 | 410 | | | |

ers cooperating annually. Each fall 500 to 750 calves have been weighed and graded by the extension livestock specialist or county agricultural agents. The weights have been, in most cases, obtained on a portable scale owned by the Department of Animal Husbandry.

Individual calf weights were corrected for the effect of the age of the dams. It can be noted from the graph in figure 14 that the calf weights involved in this program have not been greatly affected by age after the cow reached five or six years. Consequently corrections were not made for calves out of older cows.

By checking each calf weight with the weight-for-age standard in table IV, breeders have been able to determine which calves were above or below average weight.

Each breeder has been encouraged to use this information plus the type score or grade of calves in selecting replacement heifers. Cows producing calves scoring poorly on either weight-for-age or grade have been recommended as good culling material.

Tremendous differences were observed between the average calf weights from herd to herd. Almost without exception the calves in the high herd each year averaged 100 to 150 pounds more per calf than those in the low herd. There was often a difference of as much as a grade in the quality of the calves. When the records were analyzed, the same story was told each year. The men producing the heavy calves of top quality were using good pasture including aftermath grazing, culling their cow herds rather closely, giving attention to cows that were good milkers, using bulls of good quality with sufficient scale and bone, and the majority were following a creep-feeding program.

*Figure 15.* Weighing calves on a portable livestock scale.

Some of the men whose herds were in the low group were doing a good job on one or more of the points listed above, but failed on parts of the program, such as lack of sufficient pasture in the hot, dry months; not enough rigid culling; using cows of extreme small type; or bulls lacking in quality.

Creep-feeding, of course, had its influence on the weight and in some degree on the grade of the calves. This management practice, however, did not have as much influence as the milking ability of the cow and pasture conditions. Each year one or more of the top five herds would be in the non-creep-fed group and quite often some of the owners of the low herds were creep-feeding their calves.

**500 Beef Club**

The 500 Beef Club in New York developed out of the Beef Production Project and had its beginning in 1949. The purpose of the Club was to establish a few standards that producers should strive to achieve with their calf crop. To qualify as a member of the 500 Beef Club, a producer has been required to meet the following qualifications:

(1) Wean a calf crop of at least 90 percent.

(2) Produce calves that average in the choice feeder grade.

(3) Wean calves that average 500 pounds at 225 days of age.

During the first eight years, only 15 different cooperators qualified for the 500 Beef Club award. Usually percentage calf crop was the easiest of the qualifications to meet, with feeder grade ranking second, and weight-for-age or 500 pounds at 7½ months being the most difficult one to attain.

The extension livestock specialist at Cornell University is not attempting to enroll a large number of producers in the official 500 Beef Club Project, but is encouraging every breeder to strive to achieve the goals established in this program.

## Crossbreeding

Only in the southern states, where Brahman or cattle of Indian breeding have been used to increase heat tolerance and weaning weight of slaughter calves, has crossbreeding been used extensively in beef production.

Experimental results have not consistently shown any advantage in a crossbreeding program, and buyers of feeder calves have often discriminated against calves that have resulted from this practice. In a few cases commercial Shorthorn and Hereford breeders have used Aberdeen Angus bulls on first-calf heifers in order to have smaller calves at birth and consequently less calving trouble. This practice, however, has not been followed by many breeders.

Beef producers should realize that there is not any magic in crossbreeding cattle. Crossbred steers or heifers, however, will make just as good feeding cattle as purebreds, provided the parents of the calves are of good beef type.

Dairymen often use a beef bull to cross on dairy cows. The crosses from such matings should never be retained for breeding purposes, but should be sold as veal calves or for slaughter before reaching 18 to 20 months of age. The beef-dairy crossbred may resemble the beef parent to a considerable degree at the younger ages, but loses much of its beef qualities as the animal approaches two years of age.

## Herd Health

Keeping the beef herd free of disease and parasites and in a healthy, thrifty condition is one of the most important parts of the management program. The annual toll which is being extracted from cattlemen throughout the United States by disease and parasites was reported in the 1956 USDA Yearbook of Agriculture to be in excess of $650,000,000 a year, and the value of the cattle that died from diseases was believed to be about $90,000,000. Although these are big figures, the most startling fact is that only a minor portion of the losses were the result of death and reported losses. The major losses were due to sickness and unthriftiness.

Although a farmer should be as well versed as possible on symptoms and treatments for common animal diseases, he should always realize that the local veterinarian is one of his best friends. Breeders should not hesitate to get in touch with their veterinarian any time an unusual situation in animal health occurs.

Some of the more common infectious diseases present in New York State are described below:

***Shipping fever,*** frequently called hemorrhagic septicemia, is an infectious respiratory disease. This disease often occurs in the fall or winter months and usually in animals that have been shipped or moved to strange surroundings or otherwise subjected to unusual exposures. The disease may spread rapidly through the herd and death losses may be common due to acute pneumonia.

Symptoms include high body temperature, loss of appetite, gaunt appearance, discharge from the eyes and nose, sometimes a hacking cough, distressed breathing and a stiffened gait. Animals showing these symptoms should be isolated from the herd and a veterinarian called immediately.

Handling cattle as little and as quietly as possible a few days before shipping or moving, and for at least two weeks afterwards is important in keeping down the incidence of this disease. Provide the cattle with a good windbreak and a dry place to lie. If preventatives are to be used, vaccinate the cattle two or three weeks before moving them. Common carriers, sale barns, and show barns which have not been properly disinfected are to be avoided at all times.

***Brucellosis*** is a widespread and costly disease that not only affects cattle and other species of animals, but can also be transmitted to people.

Predominant symptoms of brucellosis in pregnant females are abortion, birth of weak calves, retained placentas, and vaginal discharge. This disease often results in temporary or permanent infertility. Presence of the disease can be detected by blood tests. Infected animals should be removed from the herd.

Calfhood vaccination will usually give the animal strong resistance to this disease. All breeders should become acquainted with the State brucellosis eradication program. For details of this program get in touch with the nearest veterinarian.

***Vibriosis,*** caused by Vibrio Fetus, is an infection of the reproductive organs. Although the disease has long been known, its importance in the cattle industry was not recognized until recent years. It is a frequent cause of breeding failures, early abortions and infertility. Infected bulls are difficult to treat and seldom recover. Infected cows generally recover spontaneously within 90 days after termination of pregnancy. Control depends upon finding and eliminating infected bulls and the use of artificial insemination with uninfected semen or the use of disease free bulls on cows that have been given enough sexual rest to enable them to free themselves of the disease. However, semen from infected bulls may be rendered reasonably safe for artificial insemination of noninfected cows by careful treatment during a holding period with certain antibiotics.

***Trichomoniasis***—The infection from this source is quite similar to vibriosis. It is a venereal infection. Abortions from Trichomoniasis are not frequent, but temporary sterility of cows often results from the filling of the uterus with pus. This reduces the calf crop and makes culls out of many otherwise good cows.

Breeders experiencing difficulty in getting cows in calf should call their veterinarian for diagnosis and recommendations for treatment.

***Leptospirosis***—Although this is an old disease in the United States, it is rather new in New York State. In calves, the symptoms are prostration and bloody urine followed by death. In adult cows, the disease causes fever, bloody milk and abortion. The urine remains infected long after symptoms have disappeared, and it is the infected urine that transmits the disease. Contact your veterinarian about vaccination or for control measures.

***Blackleg***—This is an acute, infectious disease that affects mainly young cattle and sometimes sheep. The disease is usually seen in young cattle from 6 to 24 months of age. There are a number of isolated areas in New York State where blackleg occurs.

Symptoms include high fever (105°–107° F), the formation of gaseous swellings under the skin, lameness, loss of appetite, rapid breathing, and suspension of rumination. As the disease progresses, the temperature falls and violent convulsions may occur just before death. Affected animals usually die, but sometimes can be saved with large doses of penicillin if given very early.

Blackleg should be suspected when calves or yearlings in known blackleg areas die suddenly and show gaseous swellings of the muscles. On farms where this disease has occurred, all young stock should be vaccinated in the spring before the pasture season begins. A booster shot may be needed in the fall.

***Tuberculosis***—This disease has been almost totally eradicated, although it still occurs now and then. Regular tests made by the veterinarians under the State Tuberculosis eradication program will make it possible to detect infected animals.

***Pinkeye***—This disease does not occur often in New York State, but occasionally sweeps through many herds. It is infectious and is characterized by an intense inflammation of the mucous membrane of the eye and tears mixed with pus which flow down the side of the face. In extreme cases a large grayish yellow ulcer appears on the cornea which causes temporary blindness.

The disease occurs during the hot, dry months of summer when insects are apt to be numerous and dust is abundant in the area. Methods of immunization so far have

failed. Animals can be individually treated with antiseptic washes and antibiotic ointments and will recover more rapidly if kept in a darkened area.

***Scours***—"White scours" is one of the most serious ailments affecting young calves. This disease is highly contagious and can be detected by the grayish yellow or dirty white feces which have an offensive odor. This disease appears when the calf is less than three days old and can cause serious losses. Call your veterinarian at once if these symptoms are observed.

Other forms of calf scours usually occur when the calf is a week or more of age and are usually caused by harmful bacteria in the digestive tract. Scours of this form can be checked by use of internal antiseptics. Keeping the calves out of the mud and filth of dirty barnyards is a good preventative management practice.

There are many diseases and infections that may appear in the herd from time to time. The person taking care of the cattle should always be alert and if situations arise which seem unusual the local veterinarian should be called in to diagnose the case.

***Loss of cattle from poison***—The oldest and best known animal poisons are arsenic and lead. Some of the newer insecticides are very poisonous to livestock, particularly the organic phosphates such as parathion and TEPP. Be sure insecticide bags and containers are kept out of reach of cattle, and that empty bags and containers are destroyed, preferably by burning. Paint buckets and other containers having minerals of these kinds which have been used to destroy rodents or weeds are often left around carelessly and cause death among cattle. Cattle may become poisoned from licking or chewing boards or fences that have been painted with paints containing lead. Use of lead-free paints on all buildings and fences is recommended.

Cattle may become poisoned from eating fertilizers. Sodium or potassium nitrate have been mistaken for salt and fed to cattle. Fluorine poisoning is usually of long duration and results from feeding untreated rock phosphate as a mineral supplement. Cattle can even be poisoned by salt if they are "salt starved" and are fed too much at one time and deprived of water.

There are many poisonous plants in New York State, but fortunately cattle seldom eat them. In the late summer during a drought young stock may be poisoned by the bracken fern. Cyanogenic plants (cherries, sorghum) are rare causes of poisoning.

***Bloat***—The theories and explanation for the cause of bloat in cattle are controversial. Several management practices, however, have aided in its control: (1) keep plenty of dry roughage available for cattle when on lush pasture;

(2) keep cattle on the lush area once they have been turned to this pasture; (3) use grasses in all pasture seeding mixtures; and (4) use birdsfoot trefoil, which has not been known to cause bloat in cattle. Penicillin has given favorable results when given to cattle before they are turned out to pasture and at regular intervals thereafter.

Farmers should watch their cattle closely when turned to lush pastures that are high in legume content. Breeders not familiar with handling bloat cases should call their veterinarian if cases develop. In case the animal "goes down" before the veterinarian arrives, the gas can be removed from the rumen by sticking a jackknife into the paunch in front of and downward from the left hip bone.

***Foul foot***—Foot rot is most commonly encountered in show cattle that are confined to dirty quarters during the summer months. Infected cattle can be detected by lameness and inflammation occurring between the toes and around the hoofhead. The infection can often be prevented by forcing the cattle to walk through a shallow box containing air-slaked lime when leaving and entering the barn. Keeping the feet properly trimmed also helps.

Treatment should consist of cleaning the infected foot thoroughly and applying a strong antiseptic. In mild cases undiluted creolin or tincture of iodine may be sufficient. In more advanced cases, a 20 percent solution of blue vitriol or potassium permanganate is preferred. Intravenous injections of sodium sulfapyridine are recommended for cattle that are difficult to handle.

***Warts***—Warts frequently appear on the head, neck, shoulders and less frequently on other parts of the animal. Although these small skin tumors are caused by a virus which can be spread from animal to animal, they usually do not cause much trouble for the beef producer. The warts more commonly appear in late winter and early spring and often disappear without the need of any treatment.

Daily or frequent application of castor oil or vaseline will usually speed their disappearance. Your veterinarian can also give the animal an injection which will often be effective.

***Ringworm***—Ringworm is caused by a fungus or vegetable parasite and is normally observed in the herd during the winter and early spring months. It is contagious and may spread throughout the herd, even to persons working with the cattle, unless infected animals are treated. Presence of ringworm can be easily detected by the gray, crusty, circular patches about the head and neck and occasionally other areas of the body. Individual treatment consists of removing the crusts from the infected area and applying a tincture of iodine or

sulfur ointment. Several applications may be necessary. In severe outbreaks, fungicides are available that in proper dilution may be used for spraying the entire herd and premises.

***Cattle lice***—Lice are most troublesome during the winter months and can be successfully controlled by thoroughly spraying the herd with a high pressure sprayer using either one pound of 25 percent lindane wettable powder or one pint of 25 percent lindane emulsifiable solution in 100 gallons of water. This is equivalent to one tablespoon of powder or one teaspoon of liquid in one gallon of water. Spraying should be done when the cattle are yarded in the fall. At least two gallons or more of spray should be applied to each animal and care should be taken to wet each individual thoroughly. For best results spray twice, eighteen to twenty-one days apart. Treat again if lice are found during the winter. If spraying is not practical, the next best method is dusting, which will give fair results if the entire animal is thoroughly covered. Apply 6 to 8 ounces of either .5, .75, or 1 percent rotenone dust to each animal. A bellows-type pump duster will speed the job and give better results than just sprinkling the rotenone on the animal.

A fungicide for ringworm control can be combined with the lindane spray for lice. It might be good insurance to use this combined spray when cattle are yarded in the fall.

***Cattle mange***—Mange is caused by microscopic mites and their injury resembles that caused by lice. If crusts or scabs form on the skin and the hair falls in spots, but no lice can be found, mange may be suspected. A veterinarian should be be called in for diagnosis. Although mange is rather rare in beef cattle herds in New York State, it is occasionally found and can be brought under control by two thorough sprayings ten days apart using two pounds of 25 percent lindane wettable powder in 100 gallons of water. It is essential that a high pressure power sprayer be used. Dusting is of no value in controlling this parasite.

***Horn flies and other biting flies***—Horn flies are found in clusters on the backs of cattle during the summer months. They suck blood and cause severe irritation. This parasite spends its entire life on the animal and can be easily controlled by spraying with almost any of the new insecticides. Methoxychlor mixed at the rate of 8 pounds of 50 percent wettable material in 100 gallons of water makes a satisfactory spray and should be applied on the back of the animal every two to four weeks. Properly installed back rubbers are an easy method of horn fly control, although not as effective as regular spraying. Use methoxychlor on the back rubbers.

Stable flies, horse flies, and deer flies are often annoying to cattle and may interfere with weight gains. Use of fly sprays containing

pyrethrum and piperonyl butoxide plus a repellent will give temporary relief. Regular use of such a fly spray is not practical on ordinary beef cattle, but may be of use on show stock.

***Cattle grubs***—Cattle grubs are the larval forms of the heel fly that chases cattle about the pasture in the early summer. The grubs or warbles make large bumps on the cattle's back from late February through April. The flies lay eggs on the legs of cattle and young grubs bore under the skin, wander about the body for about ten months and finally locate under the skin somewhere along the back. Sprays for controlling the heel fly have not been effective. Research work on "systemic" insecticides to control cattle grubs is showing favorable results. These insecticides are given as a large "pill" or bolus by mouth, or as injections or sprays. The systemic Trolene has been accepted for limited use in the Midwest, at 110 milligrams per kilogram body weight, by mouth. Treatment should be given in the fall, as the systemics kill the grubs in the body long before they have reached the backs. Only one treatment is necessary each year. *No* systemics are recommended for use in New York (winter 1957–58). It is expected that

*Figure 16.* Back rubbers, if kept filled or soaked with insecticides, may be helpful in controlling some external parasites. Thorough spraying is a better method of control.

this type of control may be recommended and become popular in the near future. Keep in touch with your county agent or agricultural college for latest recommendations.

At present the recommended method for control of cattle grubs is that of killing the grubs or warbles in the back of the animal, which consequently helps control the heel fly population the following year. Rotenone is the only material recommended for controlling grubs, and should be applied as dust or in a power spray about a month after the first bumps appear in the backs of the animals. This is normally from March through April. If a dust is used, use 1½ percent rotenone dust and apply three to four ounces per animal, and rub the dust into the hair with a stiff brush. Should a spray be used, use 7½ pounds of 5 percent rotenone in 100 gallons of water, and spray the backs of the cattle with a pressure of about 400 pounds. The spray nozzle should have a 5/64 aperture and be held no more than 18 inches from the back. The approximate time for an application of dust or spray in New York State is March 1st, April 1st, and May 1st. Try to avoid marketing severely grubby steers during March and April.

***Internal parasites***—Internal parasites, although apparently not a common problem with many New York beef producers, may become one needing attention in some herds. Anyone suspecting an internal parasite problem should contact their veterinarian and have the case investigated.

## Marketing

**Feeder cattle**

Beef producers selling feeder calves in New York State enjoy an excellent market. One of the methods of selling feeders is through consignment sales sponsored by the New York Beef Breeders and Feeders Improvement Project. This organization was started in 1944 by producers, county extension commodity committees and the State Extension Service primarily as a demonstrational sale where calves could be bought and sold on a graded basis. The sales have grown from a few head sold at Palmyra, N. Y. to several regional sales selling more than 1200 head annually. These sales are held the latter part of October and the first week in November.

All calves sold through the feeder calf sales are nominated not later than the first part of August. These calves are subject to inspection by a local committee previous to the sale and only calves that have been dehorned and properly castrated

are accepted. All calves are delivered to the sale point the day previous to the sale where they are weighed, further checked for horns and stags, and graded into uniform lots according to breed, sex, weight, and quality. On sale day all calves are sold at public auction with buyers being permitted to purchase one or more out of each lot that goes through the sale.

One spring sale is held annually to make a market for late calves that are too small to be sold in the fall sales and also for a few yearlings that some producers wish to sell at this time of year.

The feeder calf sales have proven popular in New York State. These sales have made a market for the commercial feeder calf producer and also the purebred breeder who wishes to sell a few calves. Although the calves have usually averaged somewhat above the terminal feeder quotations, good buys have always been available to the alert buyer and consequently cattle feeders have found these sales a good source of feeder cattle. The sales have proven of particular value to the farmer who wishes to purchase only a few head.

Some of the larger producers who have as many as 50 or more calves have found private treaty sales a good method of selling feeder calves. Such sales make it possible to build a reputation with cattle feeders and to reduce sales costs and general overhead in marketing feeder cattle. Unfortunately few of the New York breeders produce enough feeder calves to make this method of selling practical.

**Slaughter cattle**

Marketing continues to be one of the important problems for cattle feeders in areas where cattle numbers are small. Farmers feeding only a few steers may find their local butcher a good outlet. Some producers have found the home freezer trade to be an excellent market for a limited number of cattle.

Several auction markets established by one of the cooperative marketing organizations, have been very helpful in providing an outlet for beef-type slaughter cattle. Some privately owned auction markets have also provided a market for a number of beef producers.

Many local auction markets do not receive sufficient numbers of beef-type cattle to attract buyers for this class of cattle. Farmers who have cattle to sell should therefore investigate their local marketing facilities and get assurance that buyers of beef-type cattle will be present on sale day.

New York's one terminal market is in Buffalo. There are several other markets of comparable size within easy trucking distance from New York farms in Pennsylvania and New Jersey.

Beef producers should market cattle in "good weighing condition". Cattle that show excessive "fill" will be heavily discounted by the buyer.

*Figure 17.* An attractive road sign will often stop a prospective buyer.

**Selling purebred cattle**

One of the attributes of a sucessful purebred cattle breeder is that he be a good salesman. Too many people think that good cattle sell themselves. That is far from true. Probably the ability of the breeder to merchandise his cattle properly has as much to do with the success of a purebred cattle program as any other one point.

Another important factor in selling purebred cattle is the confidence the public has in the breeder. In no other business is integrity more important than in the cattle business.

Advertising is important in the purebred breeder's sales program. This can be done in many ways. One of the important methods is that of having an attractive road sign at the entrance to the farmstead. Prospective buyers often pass farms with cattle for sale only because they do not know where to find the breeder. Also, prospective buyers often stop and make calls that were not planned because they saw the sign and decided to stop and observe the cattle.

Having a few good quality cattle in the pasture near the highway or where they will be seen is another excellent means of advertising. In other words, the location of the farmstead in relation to highways and traffic is quite important.

Exhibiting at county, regional, State and other fairs and shows is also an excellent way to get cattle before the public. Purebred breeders selling registered breeding stock should be interested in having beef cattle on exhibit at the county fair. Likewise, breeders should be anxious to make the beef exhibit at the State Fair one that will make people conscious of the beef enterprise in their State. Breeders with top quality cattle should plan to participate in the larger shows.

Sending a few top cattle to consignment sales is a good method of advertising the breeding herd. Consequently it is advisable to try to sell some of the best cattle offered for sale through these types of sales. Low or mediocre quality cattle should not be chosen for consignment sales, but should be sold privately or to the butcher. Nothing gives a prospective buyer a poorer opinion of a breeder's cattle than to see some low-quality animals at a

consignment sale. In fact, selling culls to another breeder is never a good practice.

Advertising in local papers, agricultural magazines and breed journals is an excellent way of placing cattle before the public. In choosing the papers for the advertisement program, the type of buyers to be reached should be considered. Some breeders believe that continuous advertising is more important than one large advertisement placed once each year.

Successful cattle salesmen always keep in contact with their buyers. This is of particular importance when a sale is made to a new breeder who is just starting in the business. The seller should keep close contact with his new client and offer as much assistance and advice as seems necessary and advisable to help the new breeder become established. Assistance from the seller will often prevent the new breeder from making many mistakes and help him off to a successful beginning in the beef business. This type of cooperation and interest in a new breeder often brings additional sales.

A clean, neat appearing farmstead where cattle are attractively presented to the public at all times is important in a good sales pro-

*Figure 18.* Winning a championship at a State or regional consignment sale or show is effective advertising that cannot be purchased.

gram. Sales cattle should be kept clipped the recommended way at all times and should be in the proper condition to be attractive to the prospective purchaser. Feet may need to be trimmed at frequent intervals and horns should be trained to grow in the proper direction.

All cattle should be identified by horn brands or neck chains. The sales cattle should be kept in a readily accessible area for the prospective buyer. No one likes to walk into a yard knee-deep in mud or have to wander about through small pens to find some heifer or bull that may be for sale. Cattle being offered for sale should be separated from those that are being kept in the herd. Sales are sometimes lost because the prospective buyer "spots" a good heifer that he wants and learns that she is not for sale.

## Buildings and Equipment

Investment in buildings and equipment should be kept to a minimum. The farmstead should be neat, however, and be attractive to the prospective purchaser, particularly in the case of herds where purebred cattle are sold for breeding stock.

Buildings and yards should be located on a well-drained area. Plans should also be made to incorporate efficiency for feeding and management of the herd. Such a program requires planning for feed storage, arrangements of feed racks and bunks and ease with which manure can be removed.

Often farmers are confronted with the problem of converting buildings and equipment from a dairy set-up into a beef program. Buildings on some dairy farms are next to impossible to rearrange. In most cases, however, these buildings can be remodeled satisfactorily for use in a beef program. It is usually best to make as few changes as possible the first year and not undertake the entire remodeling job until the new beef program has been going for at least a year.

### Housing

Housing for beef cattle need not be elaborate or expensive. Open sheds facing south or away from the prevailing winds are satisfactory. In fact, they are preferred over tight, poorly ventilated barns. A few commercial breeders in New York State winter their breeding herds without the use of buildings. The cows find sufficient shelter in wooded areas. Although this type of shelter may be adequate on a number of farms, it is usually recommended that beef cattle have a building of some kind to provide a dry place in which to bed down and be protected from the cold

rains, snow and wind. Buildings should be well ventilated, but not drafty. Sheds more than 20 feet deep are desired, and the greater the depth the warmer the building will be.

Mature brood cows require from 50 to 60 square feet of shelter, yearlings 35 to 40 square feet, and weaned calves 25 to 30 square feet. It the cattle are fed roughage under the shelter, more space is desirable, possibly 60 to 75 square feet per cow and a little more for younger cattle than shown above.

Pole-type barns or sheds are excellent for housing beef cattle. These buildings should have earthen floors and be built high enough for convenience in removing manure. Ten feet from the floor to the plate should be sufficient.

Pole-type barns can be arranged so that the roughage can be stored in the back of the shed and the cattle, by the use of movable racks, permitted to eat their way back during the winter.

Often breeders fitting cattle for sales and shows have a show barn where young cattle can be fitted. Show barns should have numerous box stalls of 10 by 12 feet dimensions and exercise yards adjacent to the barn or within easy distance. Such barns need not be expensive. They should, however, be neat and fit in with the over-all plans for the farmstead.

*Figure 19.* Herd bulls should never be shut in small stalls or pens for an extended period of time. Sheds opening into yards as shown above are ideal quarters for the herd sire during the off-breeding season.

*Figure 20.* Beef cattle are hardy and should not be confined to "tight" barns.

**Yards**

Beef cattle should not be shut in during the winter months. The breeding herd should have free access to a large well-drained area. This area should be at least three times the size of the shelter, or a minimum of 150 square feet per cow. Larger areas are quite satisfactory.

Where the yards are poorly drained, it is often advisable to pave all or a part of the yard with concrete or black top. If black top is used, it is quite important that a good base be provided.

**Silos**

Silage is not a necessity in a beef production program. However, because of the difficulty of producing top quality hay, grass silage is often advisable on New York farms. Also where this crop can be successfully produced, corn silage will probably produce more beef per acre than any other feed crop. The majority of New York farms, therefore, use some type of silo. The tower silo has many friends and often proves advisable on the beef cattle farm. Trench silos, however, can be built economically and if provided with good drainage, can often be used as a method of self-feeding beef cattle through the winter months. Usually silos used for self-feeding purposes should have concrete floors and sufficient drainage to keep them clean and usable. Feed racks can be placed in the silo ahead of the feed and moved every three or four days. A silo that permits the feeding of 10 or 12 cattle at one time can accommodate a herd of 100 head.

Bunker silos with concrete floors and adequate drainage also work satisfactorily on New York farms. The advantages of this type of storage are its low cost and its adaptability to a self-feeding program.

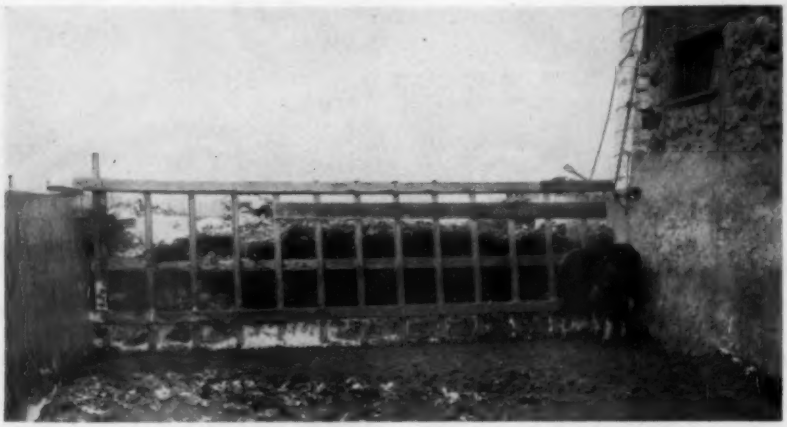

*Figure 21.* Bunker silos make it possible to self-feed silage with a minimum investment in equipment. One hundred steer calves fed out of this silo.

**Feed bunks and racks**

Feed bunks and racks should be made out of sturdy material that can stand rough treatment by livestock. Grain bunks can be built to be movable or as a stationary piece of equipment in the cattle pen. For older cattle, the bottom of the trough should be about 24 inches from the floor, and for calves, about 18 inches. Three feet of feeding space should be allowed for each brood cow and about 18 inches for each calf.

Points to consider in choosing the type of hay rack are convenience, capacity, and prevention of waste of roughage. V-type hay racks with slats not more than 6 inches apart placed above the grain bunks do not consume much space in the cattle shed, and the leaves or fine part of the hay can be caught in the grain bunk. Rectangular racks, however, usually prove more popular because of greater capacity and less waste. These racks should be sufficiently deep to hold quantities of hay without piling the hay above the horizontal level of the feeder. Racks of this kind are popular for outdoor feeding where space is not a problem.

Feed bunks butted up against the silo with a belt or chain for automatic feeding can save time in feeding cattle. Unloaders can dump the silage directly from the silo on to the automatic feeder, or the feed can be pitched from the silo so that the feed need be handled only once by the operator.

Self-feeders are often used for young cattle when the calves are on a full feed of grain. Such feeders should be built to hold enough feed so that they do not need to be filled frequently.

*Figure 22.* Hay racks of this type consume little space in the barn, but are often criticized for contributing to waste.

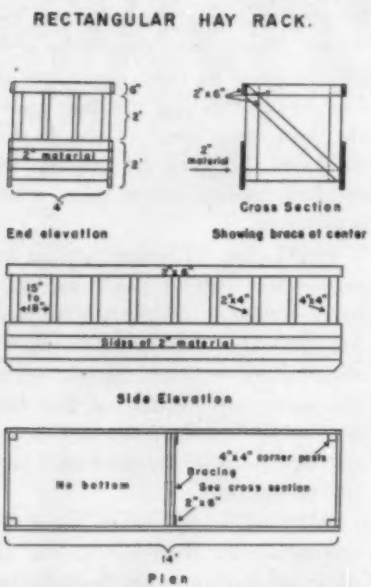


*Figure 23.* Hay feeders from this plan have capacity and keep waste to a minimum of hay. They should be located on a hard-surfaced area.

## Waterers

Beef cattle should have access to water at all times. Some breeders are fortunate in having a brook from which cattle can drink throughout the year. Such an arrangement is ideal provided the brook is close enough to winter quarters to permit cattle to have easy access to the water.

Often water tanks located in the back of the barn will not freeze during most of the winter weather. Such an arrangement is satisfactory. Where these troughs are apt to freeze, an electric heating element can be used to keep the water accessible to the cattle.

Water fountains with electric heating elements at their base have become popular. These waterers can be placed in fence lines so that

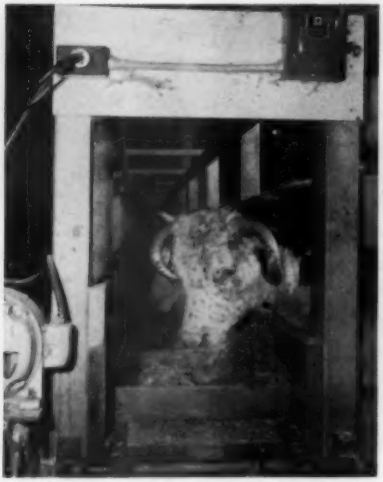

*Figure 24.* Silage feed bunk. Feed is moved from the silo to the end of the bunk by chain and cross bars.

*Figure 25.* Automatic waterers located in the fence row make it possible to water two groups of cattle with one fountain. An electric heating element prevents water from freezing.

cattle from either pen can drink from the fountain. One waterer will easily take care of 25 to 30 cattle.

### Fencing

All corral fences should be built of heavy board material, pole or rail type construction. Wire fences are usually not desirable for corrals.

Permanent wire fences are advocated for pastures and boundary line fences. Four to six barbed wires make a good fence. Woven wire is satisfactory, but more expensive. Electric fences, however, are satisfactory for dividing pastures or fields.

### Handling equipment

Every farm keeping beef cattle should be equipped with a cattle chute or squeeze that can be used to restrain animals. This type of equipment can be inexpensively constructed, but should be built of sturdy material. The only essentials are a chute 10 to 20 feet long with a simple head gate in one end and opening into a small crowding pen on the other. The width of the chute should not be more than 24 to 28 inches, inside measurement. It should be built where it is easy to drive the cattle into it. Where more than one farmstead is used, it is often advisable to have a portable chute which can be transported from farm to farm.

A well-constructed loading chute is advisable on every beef farm. Such a chute should be conveniently located and constructed out

*Figure 26.* A sturdy cattle chute is a "must" on every beef cattle farm. A simple head gate as shown above is sufficient for restraining animals.

of heavy material. The modern step-type ramp is advocated.

Cattle stocks are advocated for farms where cattle are fitted for shows and sales. Beef cattle kept in bedded box stalls usually need to have their feet trimmed from time to time. A well-constructed cattle stock makes this job easier and subjects the animal to less chance of injury.

**Scales**

Scales can be purchased at reasonable prices. Buyers, however, should not be guided by price alone when scales are purchased. Some of the portable scales on the market have not proven to be satisfactory. Investigate the kinds of scales that are offered for sale. Neighbor breeders or your county agent may be able to help you.

**Creep-Feeders**

There are a number of satisfactory types of creep-feeders ranging from an open trough in a pen that will exclude the older cattle to a self-feeder with a built-in fence. The plan shown in figure 27 for a portable creep-feeder has proven satisfactory on a number of New York farms. This creep does not require additional fences. It can be easily transported from one place to another, holds enough feed to last for several days, and is rugged enough to last for many years.

Breeders find that calves use the creep more often if it is located at a place in the pasture where cattle gather frequently, such as the watering place or in a grove of trees where cattle spend part of their time during the hot summer days.

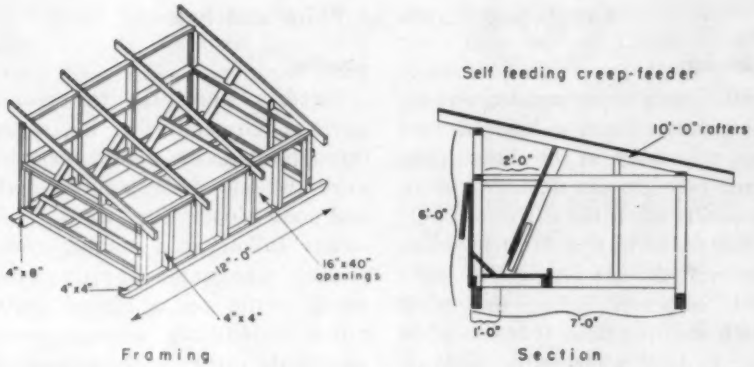


*Figure 27.* Calf creeps of this kind are ruggedly constructed and will hold several days feed supply.

*Figure 28.* Portable calf creep.

## Exhibiting Cattle at Fairs and Sales

### Selection

Obviously every breeder who exhibits cattle hopes to have his very best type cattle in the show string. Some breeders can detect the show prospects when the calves are only a few weeks of age. Most breeders, however, do not attempt to make their selection before the calves reach weaning time. It is also advisable to have a few extra cattle on feed so that final selections can be made at later ages.

Cattle selected for consignment sales should include some of the top cattle produced on the farm. A successful breeder once said, "I try to divide the best cattle I produce with my customers". This breeder's philosophy seems to be correct. Consignment sales are one of the show windows for the breeder and consequently only cattle that will add to the breeder's reputation should be consigned. On the other hand, the breeder must keep some of the "tops" in the herd if he expects to continue to produce the right kind.

The age of cattle that should be sold through consignment sales is not important. Younger cattle have the lowest feed costs and expense, while bred heifers usually gross the most money. The consignor must consider the help he has available for fitting cattle and the kind of service bull he has to promote in selling bred heifers.

### Feeding

Breeders who plan to exhibit cattle at fairs and sell a few cattle through fitted sales should keep the show and sale cattle in strong flesh and good bloom at all times. This means following a sound creep-feeding program, keeping the young cattle on a liberal grain ration following weaning even though the cattle may be on pasture during certain times of the year, and taking at least eight months or more time of full grain feeding before show or sale time.

Nurse cows are often used for calves that are to be shown when less than 12 to 14 months of age. The supplemental milk is expensive but helps to put more bloom on the youngsters.

It is better to feed bulky feeds containing a liberal amount of oats and take a longer time to get show and sale cattle in condition than to try to do the job quickly with corn and supplement.

A mixture containing 40 pounds of cracked corn, 40 pounds of crushed oats, 10 pounds of wheat bran and 10 pounds of linseed oil meal, plus good quality hay basically is a satisfactory fitting ration. For steers or cattle that must be fattened quickly, add more corn and use less oats. Where breeding cattle are to be fed over a long period of time, more oats might be added in place of a part of the corn.

A grain mixture that has been used for the Cornell University show herd for a number of years with satisfactory results is as follows:

700 lbs. cracked corn
400 lbs. crushed barley
300 lbs. crushed oats
150 lbs. wheat bran
260 lbs. linseed oil meal
150 lbs. molasses
20 lbs. ground limestone
20 lbs. salt

**Breaking cattle to lead**

Show day is not the day to break cattle to lead. An animal that is not halter-wise at the fair or sale is a reflection on the exhibitor.

Many breeders find weaning time a good age to get calves halter broken. Some fitters prefer to tie the youngsters up for the first day or two and get them accustomed to the halter. Others prefer to halter the calves daily and work with them until they become halter broken. Regardless of the method used, kindness and patience give the best results. Cattle will respond to good treatment.

*Figure 29.* Break calves to lead at a young age. This calf was halter-broken at weaning time.

**Equipment for fitting and showing**

There are several pieces of equipment needed for fitting and showing cattle. None need to be expensive and some can be made at home. A cattle stock or some kind of equipment is needed to restrain cattle while feet are trimmed. Foot trimming equipment need not be more than a chisel, a rasp and a pair of hoof nippers. Some breeders find that an electric sander equipped with very coarse paper saves a lot of work with the chisel and rasp.

For grooming the hair coat, a stiff rice root brush and three combs—a circular curry comb, a scotch comb and a liner comb—are adequate. Other equipment needed are rope and leather show halters, electric clippers, show stick, and horn weights and scrapers (for breeders of horned cattle). Of course, some soap and hair coat dressing will be needed for the show box. The dressing can be purchased or made by mixing equal parts of sweet oil and denatured alcohol.

**Clipping**

New breeders should become acquainted with the acceptable clipping practices in their breed. Horned Hereford cattle should

*Figure 30.* This steer's head has been clipped the approved way for all polled and dehorned steers and also for Angus cattle. Note that the ears have been left unclipped.

never have any hair clipped except on the tail, which is clipped from a point above the switch to the tail head or where the tail blends into the rump. Polled Hereford cattle have their tails clipped in the same way and may have a very small amount of clipping about the poll to make it appear more pronounced. Shorthorn breeders do no clipping whatsoever on their breeding cattle.

Angus breeders clip the tails on their cattle the same as do Hereford breeders and in addition clip the heads to a point just back of the ears where the halter strap comes. The ears are left unclipped as are the hairs around the nose.

All polled and dehorned steers are clipped the same as the Angus breeding cattle, and horned steers have only their tails clipped.

In no case is any clipping done about the body or legs of the animal.

Show and sale cattle should be clipped as described above from time to time to keep them attractive. The final clipping should be done about 3 to 5 days before show or sale day.

**Foot trimming**

Cattle need to have their feet trimmed occasionally. Improperly shaped feet affect the ability of the animal to walk, its general appearance, the set of the hind legs, and consequently the sale and value of the animal.

Inexperienced breeders and herdsmen should seek some help from an experienced herdsman before doing much foot trimming work. Often a new breeder can visit a nearby farm of a successful breeder to observe how cattle are restrained in the stocks, how the feet are tied, and how the foot is trimmed.

Most breeders trim the bottom of the foot level and as a result the toes are shortened. In no case should the foot trimming job be performed by just shortening the toes and leaving the floor of the foot untouched.

Feet should be trimmed several weeks before show or sale day so that the animal will have sufficient time to recover from any tenderness caused by the trimming.

*Figure 31.* Cattle stocks help to simplify the foot trimming job.

**Washing and grooming**

Washing, brushing and curling improve the appearance of the hair coat and make it possible for the owner to present his cattle to the judge or buyer in the most attractive manner. Cattle should be brushed daily and washed frequently (possibly weekly) during the two months previous to show or sale day. Clean, well-groomed cattle not only make a favorable impression on prospective buyers, but are also a reflection on the owner and the man in charge of the cattle.

Below are a few steps to follow in washing and grooming cattle:

1. First, brush all dirt from the hair coat by brushing briskly with, not against the hair.

2. Use a wash rack or small well-drained area that will provide a clean place for performing the washing job.

3. Never tie an animal with a rope while it is being washed. The rope will shrink. Use a chain.

4. Wash with a castile soap. Work the lather vigorously into the hair with a stiff scrub brush. Be sure to wash all parts of the animal including head, legs, and tail.

5. Rinse all soap from the hair coat and rinse again using a mild dip solution. Make sure the solution is not too strong. If it irritates your hand, add some more water.

6. Remove the excess water in the hair coat by using a water scraper or the back of a scotch comb.

7. After the excess water has been removed from the hair coat, the

*Figure 32.* Thoroughly wet the hair coat before attempting to work up a heavy lather. Scrub vigorously and rinse free of all soap.

*Figure 33.* The hair coat can be waved by using a circular curry comb. Following the set of the wave, the hair should be combed and brushed upward with a scotch comb and brush.

animal should be brushed down smoothly and is then ready for curling.

8. Curl the animal according to the accepted styles for its breed and according to the amount of hair available with which to work. A circular curry comb is a very useful tool for putting a wave into the hair of the animal. This type of comb is used by practically all Hereford breeders. Some Angus and Shorthorn showmen use the liner comb.

After the wave has been put into the hair coat by either the circular or liner comb, the hair should be combed and brushed upward with a scotch comb and a stiff rice root brush. Repeat the brushing process until the hair coat is dry. Fluff the tail with the brush, not the comb.

9. On show or sale day, apply a fine oil spray or coat bloom after the curling job has been completed. This will add luster and bloom to the hair coat. It can be easily done with an inexpensive hand sprayer. Wash the oil from the hair soon after show day to prevent the accumulation of dirt.

### Horn training

Breeders of horned cattle usually need to train the horns on their breeding cattle.

Wait until the horn is firmly attached to the head before applying horn weights. Usually a half pound weight is enough to use on a horn four to six inches long. Too often the inexperienced breeder will use

*Figure 34*. Using a liner comb. Make lines by drawing forward against the hair.

*Figure 35*. After the animal has been marked with the liner comb, brush upward and repeat until the hair coat is dry.

a weight too heavy and "break" the horn downward too sharply.

Remove the weights from the horn when the horn tip has reached the level of the top of the head, or, at most, one inch below this level.

Horns that tend to grow backward should be pulled forward by using horn trainers.

Show and sale cattle can have their appearance improved by shortening the horn a bit and rounding the tip somewhat with a rasp. Horns should also be scraped smooth and polished shortly before show time with a mineral oil and polished with a woolen cloth.

**Exercise**

Exercise is important for all show and sale cattle. Give cattle access to open yards or, during winter months, turn them into an open paddock for a few hours each day and in the summer reverse the procedure by turning them out at night.

**Training and showmanship**

Training animals for the show ring should start long before show or sale day. Nothing detracts more from a breeder's consignment or show herd than a group of cattle that demonstrate that they have not been worked with much before show day.

Cattle should be led frequently the last few weeks before show or sale time and accustomed to the show stick and the procedures followed in the ring.

The person showing the cattle should also train to be a good showman. Much of the techniques and know-how can be obtained by attending shows where experienced cattlemen are exhibiting and watching closely how they perform. Beef Cattlemen's Short Courses and programs of this kind sponsored by college extension services also can help new breeders along this line.

**Letting show or sale cattle down**

Cattle that have been highly fitted for shows and sales should be reduced in flesh when placed in the breeding herd. Cattle breeders term this "letting cattle down". Occasionally cattle are made temporarily sterile or ruined entirely for breeding purposes by improper feeding during this period.

Too often the cattle are let down too fast by eliminating the grain entirely from the ration. During this period cattle should receive plenty of exercise and receive the same grain mixture that was used during the fitting period, but in lesser and lesser amounts. At the same time the bulk in the ration should be increased by liberal hay, grass or other type of roughage feeding. Wheat bran and oats are bulky feeds which are cooling and conditioning in effect.

The time for letting an animal down may take several weeks to as much as several months depending on the condition and age of the animal.

## People and Groups You Should Know

1. Your county agricultural agent, he will be glad to assist you with your problems.

2. Staff members of the Department of Animal Husbandry at your State Agricultural College.

3. Representatives of the State and National breed associations. Locations of some of the major breed associations are as follows:

American Angus Association, 3201 Frederick Boulevard, St. Joseph, Missouri

American Hereford Association, Hereford Drive, Kansas City, Missouri

American Polled Hereford Association, 1110 Grand Avenue, Kansas City, Missouri

American Shorthorn Breeders Association, 7 Dexter Park Avenue, Chicago 9, Illinois

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June 1958

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